Self Diagnosis Supported model

SERVICE MANUAL

BA-4 CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-21XE40B	RM-Y155	E	SCC-S06G-A



KV-21XE40B



RM-Y155

TRINITRON® COLOR TV

SONY®

MICROFILM

SPECIFICATIONS

	KV-21XE40B
Power Requirements	120V-220V, 50-60 Hz
Number of Inputs/Outputs Video [1]	2
Audio [2]	2
Speaker Output (W)	4W X 2
Power Consumption (W) In use (Max.) In standby	105W 3W
Dimensions (W/H/D) (mm) (in.)	610 x 464.5 x 469.5 mm 24 x 18 x $18^{1/2}$
Mass (kg) (lbs)	20.6 kg 45 lbs.

Television System
PAL-M, PAL-N, NTSC

Channel Coverage
VHF: 2-13 / UHF: 14-69 / CATV: 1-125

Picture Tube
Trinitron Tube

Visible Screen Size
20-inch picture measured diagonally

Actual Screen Size
21-inch picture measured diagonally

Antenna
75 ohm external terminal for VHF/UHF

Supplied Accessories
Remote commander (w/2 size AA (R6) batteries)
RM-Y155
Antenna Dipole
Antenna Connector
Converter

[1] 1 Vp-p 75 ohms unbalanced, sync negative
[2] 500 mVrms (100% modulation), Impedance: 47 kilohms

Design and specifications are subject to change

TABLE OF CONTENTS

WARNINGS AND CAUTIONS

CAUTION!

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL FOR SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION!!

AFIN D'EVITER TOUT RESQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÁSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS A LA SECURITE!!

LES COMPOSANTS IDENTIFIES PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHEMAS DE PRINCIPE, LES VUES EXPLOSEES ET LES LISTES DE PIECES SONT D'UNEIMPORTANCE CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMERO DE PIECE EST INDIQUE DANS LE PRESENT MANUEL OU DANS DES SUPPLEMENTS PUBLIES PAR SONY. LES REGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT SONT IDENTIFIES DANS LE PRESENT MANUEL. SUIVRE CES PROCEDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONTIONNEMENT SUSPECTE.

SELF-DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY/TIMER lamp will automatically begin to flash. The number of times the lamp flashes translates to a probable source of the problem. A definition of the STANDBY/TIMER lamp flash indicators is listed in the instruction manual for the user's knowledge and reference. If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

DIAGNOSTIC TEST INDICATORS

When an error occurs, the STANDBY/TIMER lamp will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the lamp will identify the first of the problem areas.

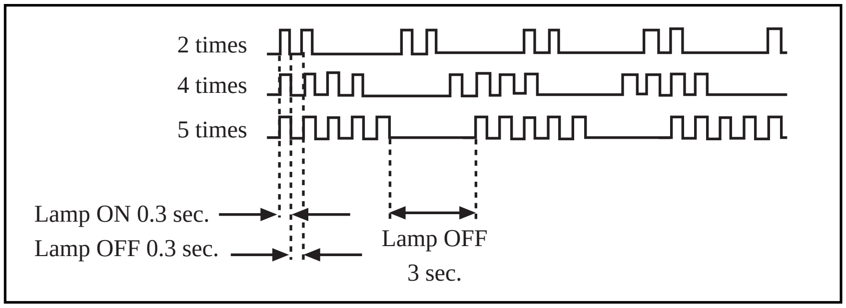
Results for all of the following diagnostic items are displayed on screen. No error has occured if the the screen displays a "0" .

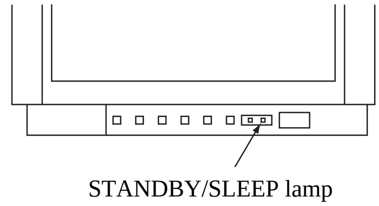
Diagnostic Item Description	No. of times STANDBY/TIMER lamp flashes	Self-diagnostic display/ Diagnostic result	Probable Cause Location	Detected Symptoms
* Power does not turn on	Does not light		* Power cord is not plugged in. * Fuse is burned out (F601)	* Power does not come on. * No power is suppled to the TV. * AC power supply is faulty.
* +B overcurrent (OCP)	2 times	2:0 or 2:1	* H.OUT (Q502) is shorted. (A board) * IC1751 and Q1751 is shorted. (C board)	* Power does not come on. * Load on power line is shorted.
* Vertical deflection stopped	4 times	4:0 or 4:1	* +13V is not supplied. (A board) * IC 541 is faulty (A board)	* Has entered standby state after horizontal raster. * Vertical deflection pulse is stopped. * Power line is shorted or power supply is stopped.
* White balance failure (not balanced)	5 times	5:0 or 5:1	* Video OUT (Q392 to 394) is faulty. (A board) * IC301 is faulty. (A board) * G2 is improperly adjusted. (Note 2)	* No raster is generated. * CRT cathode current detection reference pulse output is small.

Note 1: If a +B overcurrent is detected, stoppage of the vertical deflection is detected simultaneously.
The symptom that is diagnosed first by the microcontroller is displayed on the screen.

Note 2: Refer to Screen (G2) Adjustment in Section 3-4 of this manual.

DISPLAY OF STANDBY/TIMER LIGHT FLASH COUNT





Diagnostic Item	Flash Count*
+B overcurrent	2 times
Vertical deflection stopped	4 times
White balance failure	5 times

* One flash count is not used for self-diagnostic.

STOPPING THE STANDBY/TIMER FLASH
Turn off the power switch on the TV main unit or unplug the power cord from the outlet to stop the STANDBY/TIMER lamp from flashing.

SELF-DIAGNOSTIC SCREEN DISPLAY
For errors with symptoms such as "power sometimes shuts off" or "screen sometimes goes out" that cannot be confirmed, it is possible to bring up past occurances of failure for confirmation on the screen:

[To Bring Up Screen Test]
In standby mode, press buttons on the remote commander sequentially in rapid succession as shown below:

[Screen display] ➡ channel [5] ➡ Sound volume [–] ➡ Power ON

⇧ Note that this differs from entering the service mode (sound volume [+]).

Self-Diagnostic screen display

SELF DIAGNOSTIC			
2:		0	<-------------Numeral "0" means that no fault has been detected.
3:	N/A	0	
4:		0	
5:		1	<-------------Numeral "1" means a fault has been detected one time only.
101:	N/A	0	

HANDLING OF SELF-DIAGNOSTIC SCREEN DISPLAY
Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen during repairs. When you have completed the repairs, clear the result display to "0".

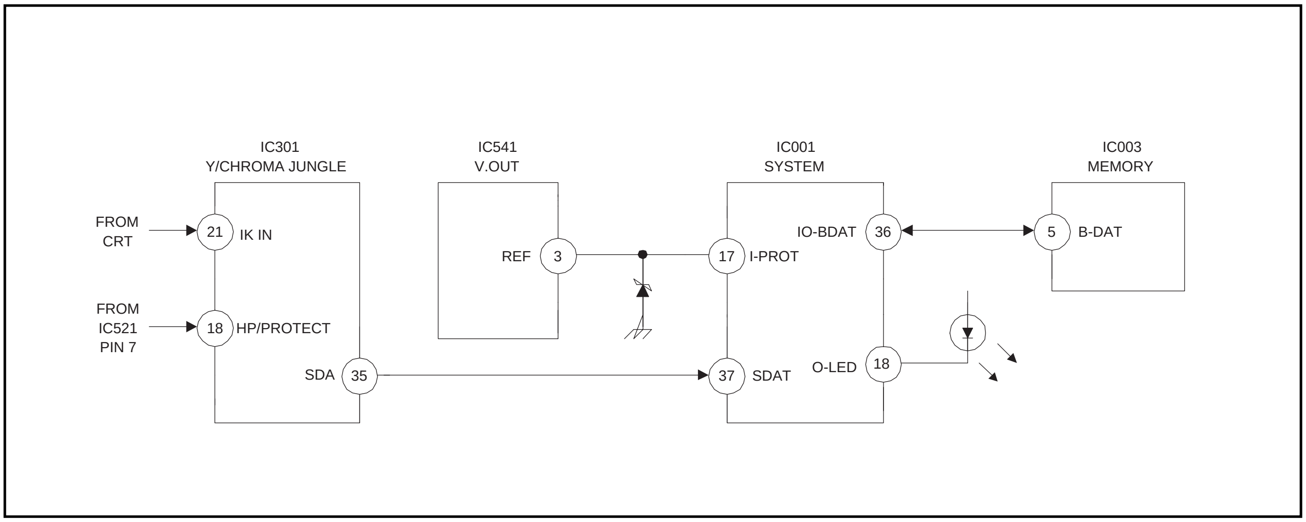
Unless the result display is cleared to "0", the self-diagnostic function will not be able to detect subsequent faults after completion of the repairs.

[Clearing the result display]
To clear the result display to "0", press buttons on the remote commander sequentially as shown below when the diagnostic screen is being displayed.

Channel [8] ➡ [ENTER]

[Quitting Self-diagnostic screen]
To quit the entire self-diagnostic screen, turn off the power switch on the remote commander or the main unit.

6. SELF-DIAGNOSTIC CIRCUIT



+B overcurrent (OCP)	Occurs when an overcurrent on the +B(115V) line is detected by pin 18 of IC301. If the voltage to pin 18 of IC301 is less than 1V when V.SYNC is more than seven verticals in a period, the unit will automatically turn off.
Vertical deflection stopped	Occurs when an absence of the vertical deflection pulse is detected by pin 17 of IC001. Power supply will shut down when waveform interval exceeds 2 seconds.
White balance failure	If the RGB levels* do not balance within 2 seconds after the power is turned on, this error will be detected by IC301. TV will stay on, but there will be no picture. *(Refers to the RGB levels of the AKB detection Ref pulse that detects IK.)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are “pinched” or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the B+ and HV to see if they are specified values. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
8. Check the antenna terminals, metal trim, “metallized" knobs, screws, and all other exposed metal parts for AC Leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampere). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instructions.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low voltage scale. The Simpson's 250 and Sanwa SH-63Trd are examples of passive VOMs that are suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60-l00 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)

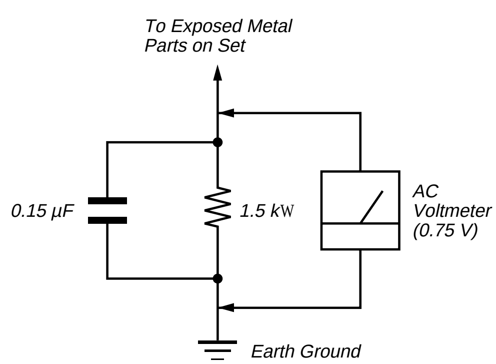


Fig. A. Using an AC voltmeter to check AC leakage.

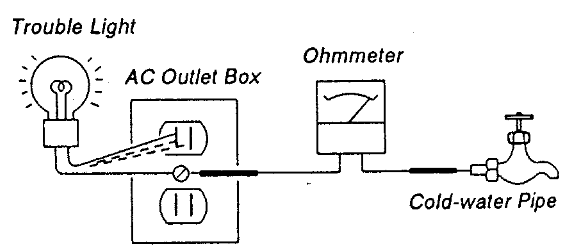


Fig B. Checking for earth ground.

SECTION 1-1
GENERAL

The instructions mentioned in this section are partial abstracts from the Operating Instruction Manual. The pages numbers shown reflect those of the Operating Instruction Manual.

Warnings and Cautions

To prevent fire or shock hazard, do not expose the TV to rain or moisture.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION
When using TV games, computers, and similar products with your TV, keep the brightness and contrast functions at low settings. If a fixed (non-moving) pattern is left on the screen for long periods of time at a high brightness or contrast setting, the image can be permanently imprinted onto the screen. Continuously watching the same channel can cause the imprint of station logos onto the TV screen. These types of imprints are not covered by your warranty because they are the result of misuse.

> You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Safety Precautions
- Operate the TV only on 120 V AC.
- One blade of the power plug is wider than the other for safety purposes and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer. TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.
- If any liquid or solid object falls into the TV, unplug it and have it checked by qualified personnel before operating it further.
- Unplug the TV from the wall outlet if you are not going to use it for several days or more. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

For more safety information, see the "IMPORTANT SAFEGUARDS" leaflet packed with your TV.

Protecting the TV
- To prevent internal heat build-up, do not block the ventilation openings.
- Do not install the TV in a hot or humid place, or in a place subject to excessive dust or mechanical vibration.

Note on CAPTION VISION
This television receiver provides display of television closed captioning in accordance with § 15.119 of the FCC rules.

Note to CATV System Installer
Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Use of this television for other than private viewing of programs broadcast on UHF or VHF or transmitted by cable companies for the use of the general public may require authorization from the broadcaster/cable company and/or program owner.

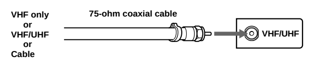
Step 1: Connecting the TV

The following steps guide you through your initial set up. Check the model number of your TV (located on the front of this manual) and select the appropriate diagram.

Connecting an Indoor, Outdoor or Cable Antenna

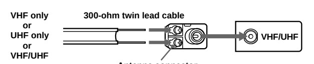
This connection offers the best picture quality. Connection is made directly from the cable or antenna to the TV.

A

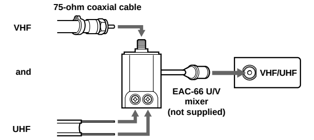


If you cannot connect your antenna or cable directly to the TV antenna terminal, follow one of the diagrams below.

B

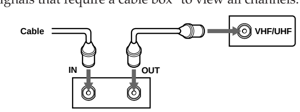


C



Connecting to a Cable TV System Through a Cable Box

Some pay cable TV systems use scrambled or encoded signals that require a cable box* to view all channels.



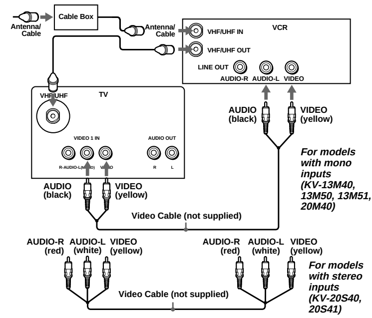
*Cable box

Note
- If you will be controlling all channel selection through your cable box, you should consider using the CHANNEL FIX feature discussed on page 11.

Connecting a VCR

See your VCR instructions to set up the VCR. After connecting the VCR to the TV, you will be able to do the following:
- Watch video tapes
- Record one TV program while viewing another

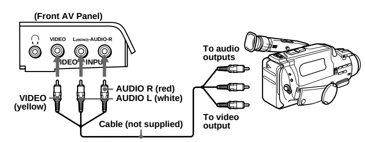
Notes
- If your cable system requires the use of a cable box, install it between the cable and the VCR.
- For a monaural VCR, connect the audio output of the VCR to the AUDIO L (MONO) on the TV.



Connecting a Camcorder

All models except KV-13M40

Use this connection to view a video tape from a camcorder.

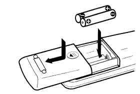


Notes
- For a monaural camcorder, connect the audio output of the camcorder to AUDIO L (MONO) on the TV.
- If you are connecting your camcorder to a monaural TV (KV-13M50, 13M51, 20M40 only), plug the white audio connector into the AUDIO-L input on the TV.
- You can also connect a camcorder to inputs on the rear of the TV (all models).

Step 2: Using the Remote Control

Inserting Batteries

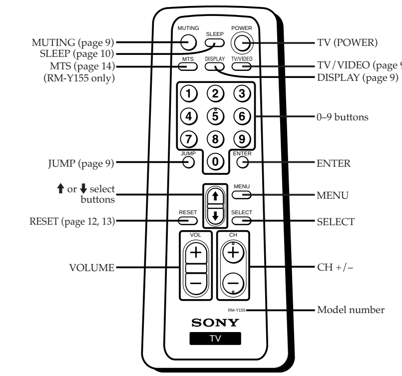
Insert two size AA (R6) batteries (supplied) by matching the + and – on the batteries to the + and – inside the battery compartment. With normal use, the batteries should last for approximately six months.



Notes
- Remove the batteries to avoid possible damage from battery leakage if you will not be using the remote control for an extended period of time.
- Handle the remote control with care. Avoid dropping it, getting it wet, or placing it in direct sunlight, near a heater, or where the humidity is high.

Remote Control Operation Buttons

In the instructions that follow, please refer to the buttons on your remote control. The remote control shown is model RM-Y155.



Step 3: Setting Menu Language

Changing the Menu Language

Except Canadian models

The menu illustrations are for KV-20S40. Your on-screen menus may not look like those used within this manual. When a feature is only available to a limited set of models, those models will be listed.

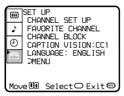
If you want to view the menus in Spanish, you can change the menu language.

1 **Press MENU.**
The main menu appears.
Move the cursor ⬆ or ⬇ to the SET UP 🧰 menu, press SELECT.



2 **Press ⬆ or ⬇ to move the cursor to LANGUAGE and press SELECT.**
ENGLISH will appear red.





3 **Press ⬆ or ⬇ to select ESPAÑOL and press SELECT.**
ESPAÑOL will turn red and the menu will appear in Spanish.



4 **Press MENU to return to the TV program.**

Step 4: Setting up Your Channels

Setting Up the TV Automatically

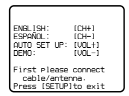
KV-20M40, 20S40, 20S41 only

The Easy Set Up Guide allows you to set up the on-screen language and set all receivable channels. (The Easy Set Up Guide screen appears every time you turn on the TV until you perform AUTO PROGRAM).

1 **Press POWER to turn on your TV.**
The Easy Set Up Guide screen appears.

2 (Except Canadian Models) **Press CH + to select English screens or CH – to select Spanish screens.**

3 **Press VOL + to continue or VOL – for a DEMO of functions and menus.**



To perform this function again
Press the SET UP button on your TV.

Auto Programming Your Channels (AUTO PROGRAM)

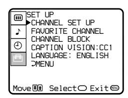
The AUTO PROGRAM feature allows you to set all receivable channels in one step. After this function is completed, you may delete unwanted channels or add additional channels.

Notes
- If the TV is set to VIDEO, you cannot run AUTO PROGRAM. Press TV/VIDEO on the remote control until a channel number appears.
- It is usually best to preset channels during the day when more channels are broadcasting and receivable.

1 **Press MENU.**

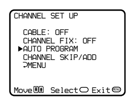


2 **Move the cursor ⬆ or ⬇ to the SET UP 🧰 menu and press SELECT.**
The SET UP menu appears.



3 **Move the cursor ⬆ or ⬇ to CHANNEL SET UP and press SELECT.**

4 **Move the cursor ⬆ or ⬇ to AUTO PROGRAM and press SELECT.**
AUTO PROGRAM appears on the screen and the TV starts scanning and presetting channels.



Notes
- Pressing any button on the remote control while AUTO PROGRAM is scanning and presetting channels will cause AUTO PROGRAM to stop.
- When you run AUTO PROGRAM your CHANNEL FIX and ON/OFF TIMER settings will be erased.

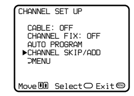
Skipping or Adding Channels (CHANNEL SKIP /ADD)

After you run AUTO PROGRAM, you can skip unnecessary channels or add new ones.

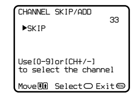
1 **Press MENU and select the SET UP 🧰 menu.**

2 **Move the cursor to CHANNEL SET UP and press SELECT.**

3 **Press ⬆ or ⬇ to CHANNEL SKIP/ADD and press SELECT.**



4 **To skip or add a channel:**
(1) Press CH +/– or 0–9 to enter the desired channel.
(2) Press SELECT to SKIP or ADD.



5 **To skip or add other channels, repeat step 4.**

6 **Press MENU to return to the TV program.**

Note
- If a channel you want to add was not received by AUTO PROGRAM, you must use the 0-9 buttons to manually add the channel.

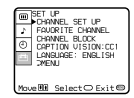
Setting Cable TV On or Off (CABLE)

If you have connected the TV to a cable TV system, set CABLE to ON. If you will be using an antenna, set CABLE to OFF to receive VHF/UHF channels.

1 **Press MENU.**

2 **Move the cursor to the SET UP 🧰 menu and press SELECT.**

3 **Move the cursor to CHANNEL SET UP and press SELECT.**

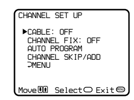


4 **Move the cursor to CABLE and press SELECT.**

5 **Press ⬆ or ⬇ to select ON or OFF.**

6 **Press SELECT.**

7 **Press MENU to return to the TV program.**



After adjusting the CABLE setting, you will need to run AUTO PROGRAM. (See page 7).

Note
- If no picture appears, the TV may be set to a video input and CABLE can not be selected. Press TV/VIDEO until a channel number appears, then follow steps 1–6.

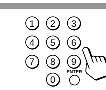
Watching the TV

Press POWER to turn the TV on.

Note
- If VIDEO is on the screen, press TV/VIDEO until a channel number appears.

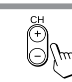
Selecting a Channel Directly

Press 0–9 to select a channel.
The channel changes after 2 seconds, or you can press ENTER for immediate selection.



Scanning Channels

Press CH +/– until the channel appears.



Note
- Keeping the CH + or – button pressed, allows you to rapidly scan to the desired channel.

Jumping Quickly Between Two Channels

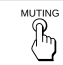
Press JUMP.
The TV alternates or jumps between the last two channels viewed.



Note
- You can only jump to channels you have selected with the 0–9 keys.

Muting the Sound

Press MUTING.
MUTING appears on the screen.
To restore the sound, press MUTING again, or press VOL +.



Displaying On-Screen Information

Use the DISPLAY key to check current time, channel and Multichannel TV Sound (MTS).

1 **Press DISPLAY.**
The channel number and local time (if set), are displayed. The TV displays the MTS mode if SAP or STEREO are selected and available (KV-20S40, 20S41 only).
The MTS mode display disappears after 4 seconds.

2 **Press DISPLAY again.**
CC1 (default setting) appears on the screen for a few seconds. A printed version of the dialog and sound effects will appear, if available.

3 **To turn off CAPTION VISION, press DISPLAY again until DISPLAY OFF appears.**
It will take a few seconds for DISPLAY OFF to disappear.

Notes
- See page **12** for more information about CAPTION VISION.
- See page **14** for more information about MTS.

Watching Video Tapes

1 **Press TV/VIDEO until the correct video input appears.**



2 **Press PLAY on your VCR to view the video tape.**

3 **Press TV/VIDEO to return to the TV program.**

Listening with Headphones or an Earphone

Plug the headphones or earphone into the jack on the front of the TV. Using headphones will turn off the sound to the TV speakers.

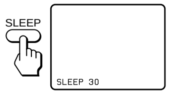
Note
- If your TV is monaural, the monaural sound will be heard from both headphones.

Additional Features

Setting the SLEEP Timer

The SLEEP timer programs the TV to stay on for a length of time and then shut off automatically.

1 **Press SLEEP until the length of time you want the TV to stay on appears.**
SLEEP appears one minute before the TV shuts off.
2 **To cancel the sleep timer, press SLEEP again until SLEEP OFF appears, or turn off the TV.**

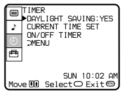


Setting DAYLIGHT SAVING

All models except KV-13M40

You can program DAYLIGHT SAVING to automatically adjust the time.

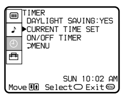
1 **Press MENU and select the TIMER ⌚ menu.**
2 **Move the cursor to DAYLIGHT SAVING and press SELECT.**
3 **Press ⇧ or ⇩ to select YES or NO based on the following options:**
Spring: Select YES, the current time moves one hour ahead.
Fall: Select NO, the current time moves back one hour.



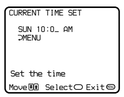
Setting the clock (CURRENT TIME SET)

All models except KV-13M40

1 **Press MENU and select the TIMER ⌚ menu.**



2 **Move the cursor to CURRENT TIME SET and press SELECT.**



3 **Set the current day.**
Press SELECT and press ⇧ or ⇩ until the day entry is highlighted, press SELECT.

4 **Set the current time.**
Press SELECT until the time entry is highlighted.
Press ⇧ or ⇩ until the current hour is displayed and press SELECT.
Press ⇧ or ⇩ until the current minute is displayed and press SELECT.

Setting the ON/OFF TIMER

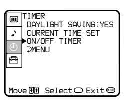
All models except KV-13M40

You can program your TV for scheduled viewing using the ON/OFF TIMER. The CURRENT TIME SET must be set in order for the ON/OFF TIMER to function.

1 **Press MENU and select the TIMER ⌚ menu.**

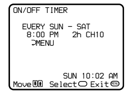


2 **Move the cursor to ON/OFF TIMER and press SELECT.**



Additional Features (continued)

3 **Enter the ON/OFF TIMER setting.**
a Press SELECT until the day entry is highlighted.
Press ⇧ or ⇩ to cycle through the day options.
Select an entry and press SELECT.
b Press SELECT until the time entry is highlighted.
Press ⇧ or ⇩ to set the hour and press SELECT.
Press ⇧ or ⇩ to set the minute and press SELECT.
c Press ⇧ or ⇩ to set the duration, up to six hours, and press SELECT.
d Press ⇧ or ⇩ to select the channel and press SELECT.
The TIMER indicator, on the front of the TV, will light up.



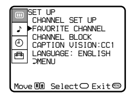
To erase your ON/OFF TIMER settings
Press RESET, while in the TIMER menu.

Note
- If you exit the ON/OFF TIMER menu while setting the TIMER, your settings will be saved.

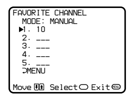
Setting FAVORITE CHANNEL

This feature provides quick access to your favorite channels.

1 **Press MENU and select the SET UP 📺 menu.**
2 **Move the cursor to FAVORITE CHANNEL and press SELECT.**



3 **Press ⇧ or ⇩ to select AUTO or MANUAL and press SELECT.**
Selecting AUTO will display the last five channels chosen with the remote control's 0–9 buttons.
4 **Press ⇧ or ⇩ to select 1, 2, 3, 4 or 5 and press SELECT.**
5 **Press ⇧ or ⇩ to highlight the desired channel and press SELECT.**

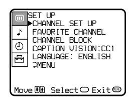


To use FAVORITE CHANNEL
Press SELECT when in normal viewing mode. Your options will appear on the screen.

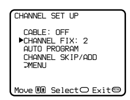
Setting CHANNEL FIX

This feature is useful when you want to control all channel selection through a cable box or video equipment.

1 **Press MENU and select the SET UP 📺 menu.**
2 **Move the cursor ⇧ or ⇩ to CHANNEL SET UP and press SELECT.**



3 **Select CHANNEL FIX and set your TV to one of the following options:**
2–6: When the cable box is connected to VHF/UHF input. Use your cable box remote to change channels.
VIDEO 1: When you have connected video equipment (e.g. DSS receiver) and you want the TV fixed to it. You will be able to alternate between video sources.
OFF: When you want to switch CHANNEL FIX off.

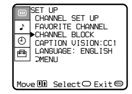


Notes
- For information on connecting a cable box, see page 3.
- ON/OFF TIMER settings will be erased when CHANNEL FIX is set.
- FAVORITE CHANNEL can not be accessed when CHANNEL FIX is set.

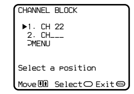
Blocking out a Channel (CHANNEL BLOCK)

This feature is useful in preventing child access to designated channels.

1 **Press MENU and select the SET UP 📺 menu.**
2 **Move the cursor ⇧ or ⇩ to CHANNEL BLOCK and press SELECT.**



3 **Move the cursor to 1 or 2 and press SELECT.**
4 **Press ⇧ or ⇩ until you reach the channel you want to block and press SELECT.**
When you try to tune to the blocked channel, BLOCKED will appear on the screen. CAPTION VISION will also be blocked.

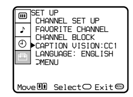


To erase your CHANNEL BLOCK settings
Press RESET, while in the CHANNEL BLOCK menu.

Selecting CAPTION VISION

Some programs are broadcast with CAPTION VISION. These services are sometimes limited to specific broadcasting networks and may not be available in your area. (CC1 is the default setting).

1 **Press MENU and select the SET UP 📺 menu.**
2 **Move the cursor ⇧ or ⇩ to CAPTION VISION and press SELECT.**
3 **Press ⇧ or ⇩ and set your TV to one of the following options:**



Choose	To Display
CC1, 2, 3 or 4	A printed version of the dialog or sound effects of a program. (The default setting is CC1).
TEXT 1, 2, 3 or 4	Station/network related information that usually is not related to the program.
XDS (Extended Data Services)	A program's type, name, length and call letters.

4 **Press DISPLAY.**
The caption will appear in a few seconds, if available.
5 **To turn off CAPTION VISION, press DISPLAY until DISPLAY OFF appears.**

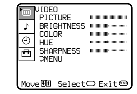
Notes
- Captions disappear for a few seconds when you press the MUTING button.
- Captions may appear with a white box or other errors, if you have poor reception on the channel.

Using the VIDEO Menu

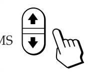
Adjusting the VIDEO Settings

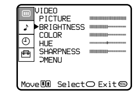
You can adjust the PICTURE, BRIGHTNESS, COLOR, HUE, and SHARPNESS of any TV image.

1 **Press MENU and select the VIDEO 📺 menu.**



2 **Move the cursor ⇧ or ⇩ to the feature you want to adjust and press SELECT.**
See the ADJUSTABLE ITEMS chart below for a list of the adjustments you can make.





ADJUSTABLE ITEMS

Item	Press ⇧ to	Press ⇩ to
PICTURE	Increase the contrast	Decrease the contrast
BRIGHTNESS	Brighten the picture	Darken the picture
COLOR	Increase color intensity	Decrease color intensity
HUE	Increase the green tones	Decrease the green tones
SHARPNESS	Sharpen the picture	Soften the picture

3 **Press MENU to return to the TV program.**

Restoring the factory video settings
Press RESET, while in the VIDEO menu.

Audio Menu

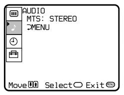
Selecting Stereo or Bilingual Programs (MTS)

KV-20S40, 20S41 only

The Multichannel TV Sound (MTS) feature allows you to enjoy Stereo Sound (STEREO), Second Audio Programs (SAP), or Monaural Sound (MONO) when available.

1 **Press MENU and select the AUDIO ♪ menu.**

2 **Move the cursor to MTS and press SELECT.**



3 **Press ♦ or ♦ to select STEREO, SAP, or MONO and press SELECT.**

Choose	To
STEREO	Listen to stereo sound.
SAP	Listen to bilingual and other programs.
MONO	Reduce noise during poor stereo broadcasts.

For Direct MTS Access

Press MTS repeatedly to cycle through the MTS options.

Note

- If your TV does not have sound, try changing your MTS setting.

Troubleshooting

If you are having a problem with your TV, try the suggestions below. If the problem persists, contact your nearest Sony dealer.

Problem	Suggestion
No picture, no sound	• Make sure the power cord is connected. • If a red light keeps flashing on the front of your TV, for more than a few minutes, call your local service center. • Check the TV/VIDEO setting: when watching TV, set to TV; when watching video tapes, set to VIDEO (page **9**). • Make sure the batteries have been inserted correctly into the remote control. • Try another channel. It could be station trouble.
Poor or no picture, good sound	• Adjust PICTURE in the VIDEO menu (page **13**). • Adjust BRIGHTNESS in the VIDEO menu (page **13**). • Check the antenna and/or cable connections (page **3**).
Good picture, no sound	• Press MUTING so that MUTING disappears from the screen (page **9**). • Check your AUDIO settings. Your TV may be set to SAP (page **14**).
No color	• Adjust COLOR in the VIDEO menu (page **13**). • Make sure that a black and white program is not being broadcast.
Only snow appears on the screen	• Check the CABLE setting in the SET UP menu (page **8**). • Check the antenna and/or cable connections (page **3**). • Make sure the channel selected is currently broadcasting.
Dotted lines or stripes	• Adjust the antenna. • Move the TV away from other electronic equipment. Some electronic equipment can create electrical noise, which can interfere with TV reception.
Double images or ghosts	• Check your outdoor antenna or call your cable service.
Cannot receive higher number channels (UHF) when using an antenna	• Make sure CABLE is set to OFF in the SET UP menu (page **8**). • Use AUTO PROGRAM to add channels that are not presently in the memory (page **7**).
Cable stations don't seem to work	• Make sure CABLE is set to ON in the SET UP menu (page **8**). • Use AUTO PROGRAM to add channels that are not presently in the memory (page **7**).
Remote control does not operate	• Batteries could be weak. Replace them (page **5**). • Move the TV 3–4 feet away from fluorescent lights.
The TV needs to be cleaned	• Clean the TV with a soft dry cloth. Never use strong solvents such as thinner or benzine, which might damage the finish of the cabinet.
The TV is fixed to one channel	• Try turning CHANNEL FIX off (page **11**). • Use AUTO PROGRAM to add receivable channels that are not presently in the TV memory (page **7**).

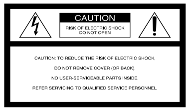
If, after reading these operating instructions, you have additional questions related to the use of your Sony television, please call our Direct Response Center at 1-800-222-SONY (7669).

SECTION 1-2
GENERAL

Las instrucciones contenidas en esta seccion, son abstractos del manual de instrucciones y operacion. La numeracion de las paginas hacen referencia el numero de pagina en el manual original.

Advertencias

Para evitar el riesgo de incendios o de descargas eléctricas, no exponga al televisor a la lluvia ni a la humedad.



Este símbolo sirve para indicar al usuario la presencia de altas tensiones sin aislar en el interior de este producto, las que pueden ser de una magnitud que presente riesgo de descargas eléctricas.

Este símbolo sirve para indicar al usuario que el manual que acompaña a este producto contiene instrucciones importantes referentes al funcionamiento y mantenimiento del producto.

PRECAUCIÓN
Al utilizar videojuegos, computadoras o productos similares con el televisor, mantenga los preferencias de brillo y contraste a un nivel bajo. Si una imagen fija permanece en la pantalla durante mucho tiempo con elevada intensidad de brillo o contraste, la imagen puede quedar grabada en la pantalla de forma permanente. Igualmente, ver continuamente el mismo programa de televisión podría dejar grabada en la pantalla el logotipo de la emisora. La garantía no cubre estas quemaduras de la pantalla, ya que se deben al mal uso del aparato.

> Cualquier cambio o modificación que no se detalla expresamente en el presente manual podría anular su autorización para emplear este aparato.

Precauciones de seguridad
- Alimente el televisor exclusivamente con 120 V CA (con excepción KV-14MB40C, 21MB40C, 21ME40C, 21SB40C, 21SE40C).
- Alimente el televisor exclusivamente con 220 V CA (sólo KV-14MB40C, 21MB40C, 21ME40C, 21SB40C, 21SE40C).
- Por motivos de seguridad, un contacto de la clavija del cable eléctrico de este aparato es más ancho que el otro y la clavija entrará en el enchufe en solamente una posición. Si no puede introducirla totalmente en el enchufe, consulte con su concesionario. PARA EVITAR DESCARGAS ELÉCTRICAS, NO USE ESTA CLAVIJA POLARIZADA A MENOS QUE LOS CONTACTOS QUEDEN COMPLETAMENTE DENTRO DEL ENCHUFE.
- Si algún líquido u objeto cae dentro del televisor, desenchufe el aparato y llévelo a revisión por un técnico calificado antes de volver a utilizarlo.
- Si no va a utilizar el televisor durante varios días, desconéctelo. Para desenchufar el cable eléctrico, sujételo por la clavija, nunca tire del cable mismo.

Para mayores informes sobre medidas de seguridad, consulte el folleto "NORMAS IMPORTANTES SOBRE SEGURIDAD" que acompaña al televisor.

Protección del televisor
- Para evitar el sobrecalentamiento interno, no cubra las rejillas de ventilación.
- No instale el televisor en un lugar caliente o húmedo, ni donde esté expuesto a cantidades excesivas de polvo o a vibraciones mecánicas.

Nota sobre CAPTION VISION
Este aparato de televisión permite ver texto sobrepuesto a las imágenes, en cumplimiento con lo dispuesto en el inciso 15.119 de las normas de la Comisión Federal de Comunicaciones (FCC) de EUA.

Nota para el técnico que instala el sistema de cable
El inciso 820-40 de NEC contiene normas para la puesta a tierra y en particular, dispone que la tierra del cable debe conectarse al sistema de puesta a tierra del edificio, en el punto más cercano a la entrada del cable como sea factible.

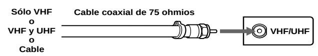
El empleo de este televisor para fines que no sean el de ver en privado programas de televisión de UHF, de VHF o transmitidos por compañías de cable para uso del público en general, puede requerir la autorización de la emisora o compañía de cable, del propietario del programa o de ambos.

Paso 1: Instalación

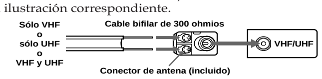
Este instructivo le guiará durante la instalación de su televisor. Siga las indicaciones de los dibujos correspondientes a su televisor (el número de modelo aparece en la portada de este manual) y seleccione el diagrama apropiado.

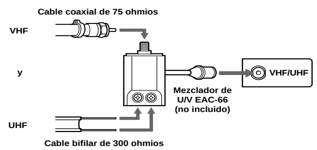
Conexión a Antena Interior, Exterior o de Cable

Utilice esta conexión para lograr una óptima calidad de imagen. Se conecta el cable o la antena directamente al televisor.



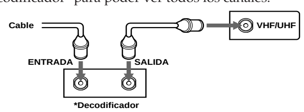
Si no se puede conectar la antena o el cable directamente a la terminal de antena del televisor, utilice las instrucciones de la ilustración correspondiente.





Conexión a Sistema de Cable por Medio de Decodificador.

Algunos sistemas de televisión por cable de paga usan señales deformadas o codificadas que requieren un decodificador* para poder ver todos los canales.

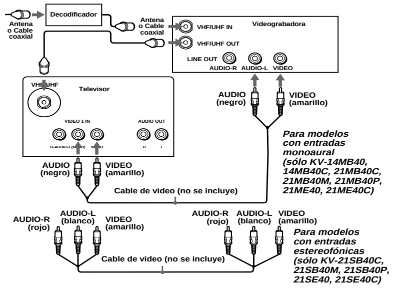


Nota
- Si va a hacer la selección de todos los canales a través de su decodificador, debe usted considerar la posibilidad de usar la función FIJAR CANAL, que se describe en la página 11.

Conexión a Videograbadora

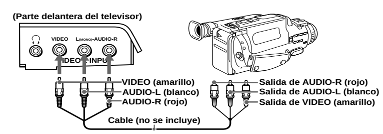
Consulte las instrucciones para instalar la videograbadora. Una vez conectada la videograbadora al televisor, podrá:
- Ver videocintas
- Grabar un programa de televisión mientras ve otro

Notas
- Si su sistema de cable requiere de un decodificador, conéctelo entre el cable y la videograbadora.
- Si utiliza una videograbadora monoaural, conecte la salida de audio de la videograbadora al conector AUDIO L (MONO) del televisor.



Conexión a Cámara de Video

Con excepción KV-14MB40, 14MB40C
Utilice esta conexión para ver la videocinta de una cámara de video.

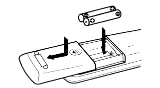


Notas
- Si utiliza una cámara de video monoaural, conecte la salida de audio de la cámara al enchufe AUDIO L (MONO) del televisor.
- Si conecta su cámara de video a un televisor monoaural (sólo KV-14MB40, 14MB40C, 21MB40C, 21MB40M, 21MB40P, 21ME40, 21ME40C), enchufe la clavija blanca de audio de la cámara en la entrada de AUDIO L del televisor.
- También puede conectar su cámara de video a las entradas localizadas en la parte posterior del televisor (todos los modelos).

Paso 2: Uso del Control Remoto

Instalación de las Pilas

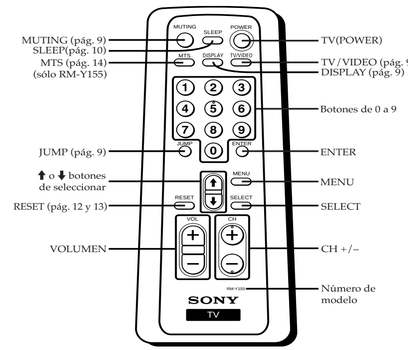
Inserte dos pilas AA (R6) (se incluyen). Asegúrese que los signos + y – de las pilas concuerdan con los signos + y – dentro del control remoto. Las pilas deben durar aproximadamente 6 meses con uso normal.



Notas
- Para evitar el daño que podría causar la fuga de electrólito de las pilas, sáquelas del compartimiento si no piensa utilizar el control remoto durante largo tiempo.
- Maneje el control remoto con cuidado. No lo deje caer ni permita que se moje. No lo coloque bajo la luz solar directa, cerca de un calentador o en lugares húmedos.

Operación de los Botones del Control Remoto

Las siguientes instrucciones se refieren a los botones de su control remoto. El dibujo corresponde al control remoto RM-Y155.



Si pierde su control remoto
Con excepción KV-14MB40, 14MB40C
Usted puede usar los botones en la parte delantera del televisor para controlar los menús y cambiar los canales.

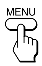
Paso 3: Ajuste de Idioma de los Menús

Cambio de Idioma de los Menús

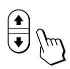
Las ilustraciones de los menús que se utilizan corresponden al modelo KV-21SE40. Es posible que sus menús en pantalla no aparezcan igual que aquellos utilizados en este manual. Al presentar funciones que se encuentren en otros modelos, el manual indicará los números de modelo correspondientes.

Si prefiere ver los menús en inglés, puede cambiar el idioma de los menús.

1 **Oprima MENU.**
Aparece el menú principal.
Coloque el cursor ↑ o ↓ en el menú de PREFERENCIAS y oprima SELECT.



2 **Oprima ↑ o ↓ para colocar el cursor en LENGUAJE y oprima SELECT.**
La palabra ESPAÑOL se pondrá roja.



```
PREFERENCIAS
 AJUSTE DE CANAL
 CANAL FAVORITO
 BLOQUEAR CANAL
 CAPTION VISION:CC1
 LENGUAJE: ESPAÑOL
 MENU
Mover  Seleccionar  Salir
```

3 **Oprima ↑ o ↓ para colocar el cursor en ENGLISH y oprima SELECT.**
ENGLISH se pondrá roja y los menús aparecerán en inglés.

```
SET UP
 CHANNEL SET UP
 FAVORITE CHANNEL
 CHANNEL BLOCK
 CAPTION VISION:CC1
 LANGUAGE: ENGLISH
 MENU
Move  Select  Exit
```

4 **Para volver a la pantalla normal, oprima MENU.**

Nota
- Con excepción de los modelos KV-14MB40, 14MB40C, usted puede controlar los menús usando los botones en la parte delantera del televisor siguiendo las instrucciones en la pantalla.

Paso 4: Programación de Canales

Programación Automática del Televisor

Con excepción KV-14MB40, 14MB40C
La función Guía de Programación Fácil le permitirá seleccionar el idioma de los menús y sintonizar automáticamente todos los canales que el televisor pueda recibir. (Mientras no lleve a cabo la AUTO PROGRAMACIÓN, la pantalla que muestra la Guía de Programación Fácil aparecerá cada vez que se encienda el televisor).

1 **Oprima POWER para encender el televisor.**
Aparecerá en pantalla la Guía de Programación Fácil.
2 **Oprima CH+ para que los menús aparezcan en inglés o CH– para que aparezcan en español.**
3 **Oprima VOL+ para continuar o VOL – para una demostración de las funciones y menús.**

```
ENGLISH:      [CH+]
ESPAÑOL:      [CH-]
AUTO AJUSTE:  [VOL+]
DEMO:         [VOL-]
MENU:         [TV/VIDEO]

Oprima[SETUP]para salir
```

Para repetir Auto Ajuste
Oprima SET UP en la parte delantera del televisor.

Programación Automática de los Canales (AUTO PROGRAMACION)

La función de AUTO PROGRAMACION le permite programar en un sólo paso todos los canales que su televisor pueda recibir. Despues, podrá omitir los canales que no desee incluir o añadir otros.

Notas
- Si el televisor está ajustado a una entrada de VIDEO, no podrá utilizar AUTO PROGRAMACION. Oprima TV/VIDEO del control remoto hasta que aparezca un número de canal.
- Se recomienda programar los canales durante el día, cuando es mayor el número de canales que están transmitiendo.

1 **Oprima MENU.**



2 **Coloque el cursor ↑ o ↓ en el menú de PREFERENCIAS y oprima SELECT o ⊕.**
Aparece el menú de PREFERENCIAS.

```
PREFERENCIAS
▶AJUSTE DE CANAL
 CANAL FAVORITO
 BLOQUEAR CANAL
 CAPTION VISION:CC1
 LENGUAJE: ESPAÑOL
 MENU
Mover  Seleccionar  Salir
```

3 **Coloque el cursor ↑ o ↓ en AJUSTE DE CANAL y oprima SELECT.**

4 **Coloque el cursor ↑ o ↓ en AUTO PROGRAMACION y oprima SELECT.**
En la pantalla aparece AUTO PROGRAMACION y el televisor empezará a buscar y programar los canales automáticamente.

```
AJUSTE DE CANAL

 CABLE: NO
 FIJAR CANAL: NO
▶AUTO PROGRAMACION
 OMITIR/AÑADIR CANAL
 MENU
Mover  Seleccionar  Salir
```

Notas
- Si oprime cualquier botón del control remoto mientras AUTO PROGRAMACION esté activada, esta función cesará.
- Al llevar cabo función AUTO PROGRAMACION, se borrarán sus selecciónes de FIJAR CANAL y ENCENDIDO/APAGADO.

Para Omitir o Añadir Canales (OMITIR/AÑADIR)

Después de efectuar la AUTO PROGRAMACION, podrá omitir los canales no deseados o añadir otros.

1 **Oprima MENU y seleccione el menú de PREFERENCIAS.**
2 **Coloque el cursor en AJUSTE DE CANAL y oprima SELECT.**
3 **Oprima ↑ o ↓ en OMITIR/AÑADIR CANAL y oprima SELECT.**

```
AJUSTE DE CANAL

 CABLE: NO
 FIJAR CANAL: SI
 AUTO PROGRAMACION
▶OMITIR/AÑADIR CANAL
 MENU
Mover  Seleccionar  Salir
```

4 **Para omitir o añadir un canal:**
(1) Oprima CH +/– o del 0 al 9 para seleccionar el canal que desea.
(2) Oprima SELECT para seleccionar OMITIR o AÑADIR.
5 **Para omitir o añadir otros canales, repita el paso 4.**
6 **Oprima MENU para volver al programa de televisión.**

```
OMITIR/AÑADIR CANAL
                  33
▶OMITIR
 MENU

Use[0-9]o[CH+/-]para
seleccionar el canal
Mover  Seleccionar  Salir
```

Nota
- Si quiere añadir un canal que no se captó con AUTO PROGRAMACION, tendrá que usar los botones de 0 a 9 para añadirlo.

Para Activar o Desactivar el Sistema de Cable (CABLE)

Si conecta su televisor a un sistema de cable, cambie la función CABLE a SI. Si utiliza una antena, cambie la función CABLE a NO para recibir canales de VHF/UHF.

1 **Oprima MENU.**
2 **Coloque el cursor en el menú de PREFERENCIAS y oprima SELECT.**
3 **Coloque el cursor en AJUSTE DE CANAL y oprima SELECT.**

```
PREFERENCIAS
 AJUSTE DE CANAL
 CANAL FAVORITO
 BLOQUEAR CANAL
 CAPTION VISION:CC1
 LENGUAJE: ESPAÑOL
 MENU
Mover  Seleccionar  Salir
```

4 **Coloque el cursor en CABLE y oprima SELECT.**
5 **Oprima ↑ o ↓ para seleccionar SI o NO.**
6 **Oprima SELECT.**
7 **Oprima MENU para volver al programa de televisión.**

```
AJUSTE DE CANAL

▶CABLE: NO
 FIJAR CANAL: NO
 AUTO PROGRAMACION
 OMITIR/AÑADIR CANAL
 MENU
Mover  Seleccionar  Salir
```

Después de ajustar la función de CABLE necesita efectuar la AUTO PROGRAMACION. (Consulte pág. 7).

Nota
- Si la imagen no aparece, es posible que el televisor está ajustado a una entrada de video y no se puede seleccionar CABLE. Oprima TV/VIDEO hasta que aparezca un número de canal y repita los pasos del 1 al 6.

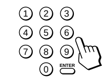
Para ver Programas de Televisión

Oprima POWER para encender el televisor.

Nota
- Si la indicación VIDEO aparece en la pantalla, oprima TV/VIDEO para que aparezca un número de canal.

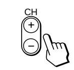
Selección Directa de Canales

Oprima los botones del 0 al 9 para seleccionar un canal.
El canal cambiará en 2 segundos, o puede oprimir ENTER después de haber seleccionado el canal para un cambio inmediato.



Exploración de Canales

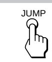
Oprima CH +/– hasta que aparezca el canal que desea.



Nota
- Al mantener CH + o – oprimido, usted puede llegar rápidamente al canal deseado.

Cambio Rápido Entre dos Canales

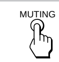
Oprima JUMP.
Oprima este botón para alternar entre dos canales.



Nota
- Podrá cambiar rápidamente sólo a un canal que haya seleccionado con los botones del 0 al 9.

Eliminación del Sonido

Oprima MUTING.
En la pantalla aparece la indicación MUTING.
Para restablecer el sonido, vuelva a oprimir MUTING u oprima VOL +.



Información en Pantalla

Utilice el botón DISPLAY para ver la hora actual, canal y función de sonido Multicanal (MTS).

1 **Oprima DISPLAY.**
Aparecerán el número de canal y la hora actual (si está ajustada). También aparecerá la modalidad de sonido multicanal (MTS) que está en uso si se ha seleccionado un segundo programa de audio (SAP) o sonido estereofónico (ESTEREO) (Sólo KV-21SB40C, 21SB40M, 21SB40P, 21SE40, 21SE40C).
La indicación MTS desaparecerá a los 4 segundos.
2 **Oprima DISPLAY una vez más.**
CC1 (el ajuste de fábrica) aparecerá en la pantalla. Una versión escrita del diálogo aparecerá, si la emisora ofrece este servicio.
3 **Para desactivar CAPTION VISION, vuelva a oprimir DISPLAY hasta que aparezca la indicación DISPLAY OFF.**
DISPLAY OFF desparecerá a los tres segundos.

Notas
- Consulte la página **12** para mayores informes sobre CAPTION VISION.
- Consulte la página **14** para mayores informes sobre MTS.

Para ver Videocintas

1 **Oprima TV/VIDEO hasta que aparezca la entrada de video que busca.**
2 **Para ver la cinta, oprima PLAY en su videograbadora.**
3 **Oprima TV/VIDEO para regresar a un programa de televisión.**



Uso de Auriculares

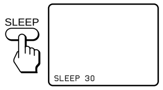
Introduzca la clavija de los auriculares en el enchufe ubicado en la parte delantera del televisor. Al usar los auriculares, automáticamente se apagará el sonido de las bocinas del televisor.

Nota
- Si su televisor es monoaural, escuchará el sonido monoaural en ambos auriculares.

Otras Funciones

Apagado Automático (SLEEP)

La función SLEEP permite que el televisor esté encendido por el período de tiempo que usted indique y después se apague automáticamente.



1 **Oprima SLEEP hasta que aparezca el número de minutos que desee.**
Un minuto antes de que el televisor se apague, aparecerá en la pantalla el mensaje SLEEP.

2 **Para cancelar el apagado automático, vuelva a oprimir SLEEP hasta que aparezca SLEEP OFF o apague el televisor.**

Nota
• Si su televisor no recibe una señal en treinta minutos, se apagará automáticamente.

Para poner HORA DE VERANO

Puedes programar HORA DE VERANO para ajustar automáticamente el tiempo.



1 **Oprima MENU y seleccione el menú de RELOJ .**

2 **Coloque el cursor en HORA DE VERANO y oprima SELECT.**

3 **Coloque ↑ o ↓ para seleccionar SI o NO basandose en las siguientes opciones:**

Primavera: Seleccione SI para adelantar el reloj una hora.
Otoño: Seleccione NO para atrasar el reloj una hora.

Para poner el reloj a la hora (FIJAR HORA ACTUAL)



1 **Oprima MENU y seleccione el menú de RELOJ .**



2 **Coloque el cursor en FIJAR HORA ACTUAL y oprima SELECT.**



3 **Indique el día.**
Oprima SELECT hasta realzar el día.
Oprima ↑ o ↓ hasta que aparezca el día de hoy y oprima SELECT.

4 **Indique la hora.**
Oprima SELECT hasta realzar la hora.
Oprima ↑ o ↓ hasta que aparezca la hora actual y oprima SELECT.
Oprima ↑ o ↓ hasta que aparezca el minuto actual y oprima SELECT.

Para usar ENCENDIDO/APAGADO

Usted puede ajustar su televisor para ver programas específicos. Para usar ENCENDIDO/APAGADO, primero tiene que poner a la función FIJAR HORA ACTUAL.

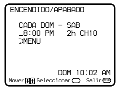


1 **Oprima MENU y seleccione el menú de RELOJ .**



2 **Coloque el cursor en ENCENDIDO/APAGADO y oprima SELECT.**

Otras Funciones (continuación)



3 **Indique el día, hora, duración y canal deseados.**
a Oprima SELECT hasta realzar el renglón correspondiente a los días.
Oprima ↑ o ↓ para cambiar la opción del día.
Cuando aparezca el día deseado, oprima SELECT.
b Oprima SELECT hasta realzar la hora.
Oprima ↑ o ↓ para indicar la hora deseada y oprima SELECT.
Oprima ↑ o ↓ para indicar el minuto deseado y oprima SELECT.
c Oprima ↑ o ↓ para indicar la duración deseada, hasta de seis horas, y oprima SELECT.
d Oprima ↑ o ↓ para indicar el canal deseado y oprima SELECT. Se encenderá el indicador del reloj en la parte delantera del televisor.

Para borrar las indicaciones seleccionadas mediante ENCENDIDO/APAGADO
Oprima RESET mientras se encuentra en el menú de ENCENDIDO/APAGADO.

Nota
• Si se sale del menú de ENCENDIDO/APAGADO al estar programando esta función, quedarán registradas las indicaciones seleccionadas.

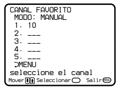
Programación de CANAL FAVORITO

Esta función le dará rápido acceso a sus canales favoritos.

1 **Oprima MENU y seleccione el menú de PREFERENCIAS .**



2 **Coloque el cursor en CANAL FAVORITO y oprima SELECT.**



3 **Oprima ↑ o ↓ para seleccionar AUTO o MANUAL y oprima SELECT.**
Al seleccionar AUTO, se mostrarán en pantalla los últimos cinco canales escogidos con los bótones de 0 a 9 del control remoto.

4 **Oprima ↑ o ↓ para seleccionar 1, 2, 3, 4 o 5 y oprima SELECT.**

5 **Oprima ↑ o ↓ para seleccionar el canal que desee y oprima SELECT.**

Para usar CANAL FAVORITO
Oprima SELECT cuando el menú no esté activado. Sus opciones aparecerán en la pantalla.

Programación de FIJAR CANAL

Esta función resulta útil cuando quiera hacer todos los cambios de canal a través de un decodificador de cable o un aparato de video.



1 **Oprima MENU y seleccione el menú de PREFERENCIAS .**

2 **Coloque el cursor en AJUSTE DE CANAL y oprima SELECT.**



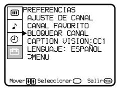
3 **Seleccione FIJAR CANAL y ajuste en el televisor a una de las siguientes opciones:**
2–6: Cuando el decodificador se encuentre conectado a AUX y el cable o antena esté conectado a la entrada VHF/UHF. Utilice el control remoto de su decodificador para cambiar canales.
VIDEO 1: Cuando haya conectado un aparato de video (p.ej. receptor de DSS) y quiere que el televisor reciba la señal de ese aparato. Así podrá intercambiar entre las dos fuentes de video.
OFF: Cuando quiere apagar FIJAR CANAL.

Notas
• Para detalles sobre la conexión de un decodificador, consulte la página 3.
• Se borrarán las selecciones de ENCENDIDO/APAGADO al utilizar la función FIJAR CANAL.
• La función CANAL FAVORITO no puede ser accesada cuando la función de FIJAR CANAL ha sido selecciónada.

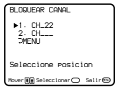
Para usar BLOQUEAR CANAL

Esta función sirve para impedir que los niños vean determinados canales.

1 **Oprima MENU y seleccione el menú de PREFERENCIAS .**



2 **Coloque el cursor en BLOQUEAR CANAL y oprima SELECT.**



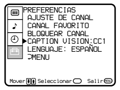
3 **Coloque el cursor para 1 o 2 y oprima SELECT.**

4 **Oprima ↑ o ↓ para mostrar el canal que desea bloquear y oprima SELECT.**
Al escoger el canal que va a suprimir, la palabra BLOQUEADO aparecerá en la pantalla y se suprimirá CAPTION VISION.

Para cancelar las opciones seleccionadas bajo BLOQUEAR CANAL
Oprima RESET mientras se encuentre en el menú de BLOQUEAR CANAL.

Para seleccionar una Opción de CAPTION VISION

Algunos programas son transmitidos con subtítulos conocidos como CAPTION VISION. Estos servicios son limitados a específicas emisoras y es posible que no esten disponibles en su área. (El ajuste de fábrica es CC1).



1 **Oprima MENU y seleccione el menú de PREFERENCIAS .**

2 **Coloque el cursor en CAPTION VISION y oprima SELECT.**

3 **Oprima ↑ o ↓ y programar su televisor a una de las siguientes opciones:**

Elija	Para mostrar
CC1, 2, 3 o 4	Un version escrita del diálogo o los efectos de sonido de un programa. (El ajuste de fábrica es CC1).
TEXT 1, 2, 3 o 4	Información de emisora/estación que no está relacionado con el programa.
XDS (Servicio ampliado de datos)	Un tipo de programa, nombre, duración y siglas de canal.

4 **Oprima DISPLAY.**
Los subtítulos aparecerán, si la emisora ofrece este servicio.

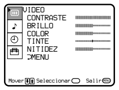
5 **Para desactivar CAPTION VISION, oprima DISPLAY hasta que aparezca DISPLAY OFF.**

Notas
• La información escrita desaparecerá durante unos segundos si oprime el botón MUTING.
• La información escrita podrá aparecer con un cuadro blanco u otros errores si la recepción del canal es deficiente.

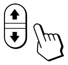
Uso del Menú de VIDEO

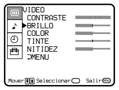
Ajustes de la imagen (VIDEO)

Puede cambiar el contraste, brillo, color, tinte y nitidez de la imagen.



1 **Oprima MENU y seleccione el menú de VIDEO .**





2 **Oprima ↑ o ↓ para seleccionar la función que desea ajustar y oprima SELECT.**
Consulte la tabla DESCRIPCIÓN DE FUNCIONES para una explicación de los ajustes que se pueden hacer.

DESCRIPCIÓN DE FUNCIONES

Función	Oprima ↑	Oprima ↓
CONTRASTE	Aumentar el contraste	Disminuir el contraste
BRILLO	Aumentar el brillo de la imagen	Disminuir el brillo de la imagen
COLOR	Aumentar el nivel de los colores	Disminuir el nivel de los colores
TINTE	Aumentar los tonos verdes	Disminuir los tonos verdes
NITIDEZ	Aumentar la nitidez de imagen	Suavizar la imagen

3 **Oprima MENU para volver al programa de televisión.**

Para reestablecer los niveles de video originales
Oprima RESET, cuando se encuentre en el menú de VIDEO.

Uso del Menú de AUDIO

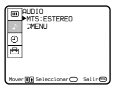
Selección de Programas Estereofónicos o Bilingües (MTS)

Sólo KV-21SB40C, 21SB40M, 21SB40P, 21SE40, 21SE40C

La función de Sonido Multicanal (MTS) permite disfrutar de sonido estereofónico (ESTEREO), un Segundo Programa de Audio (SAP) o de Sonido Monoaural, (MONO), cuando existe.

1 **Oprima MENU y seleccione el menú AUDIO ♪ .**

2 **Oprima ↑ o ↓ en MTS y oprima SELECT.**



3 **Oprima ↑ o ↓ para seleccionar ESTEREO, SAP, o MONO y oprima SELECT.**

Elija	Para
ESTEREO	Escuchar sonido estereofónico.
SAP	Escuchar programas bilingües y afines.
MONO	Reducir el ruido durante transmisiones estereofónicas deficientes.

Acceso directo a MTS

Oprima MTS en su control remoto para recorrer las opciones MTS.

Nota

- Si el televisor no tiene audio, puede ser la función SAP este seleccionada. Confirme la seleccione de AUDIO.

Solución de Problemas

En caso de un problema con su televisor, siga estas recomendaciones. Si el problema persiste, comuníquese con el concesionario Sony más cercano.

Problema	Sugerencia
Ausencia de imagen y sonido	• Asegúrese de que el cable eléctrico esté bien conectado. • Si la luz roja en la parte delantera del televisor centellea, llame al centro de servicio. • Compruebe si el ajuste TV/VIDEO es correcto: TV para ver la televisión y VIDEO para cintas de video (página **9**). • Coloque las pilas del control remoto en la posición correcta. • Pruebe otro canal. Es posible que el problema se deba a la emisora.
Imagen defectuosa o ausencia de imagen, pero sonido adecuado	• Ajuste CONTRASTE en el menú VIDEO (pág. **13**). • Ajuste BRILLO en el menú VIDEO (pág. **13**). • Revise las conexiones de la antena o del cable (pág. **3**).
Buena imagen, pero ausencia de sonido	• Oprima MUTING para que la palabra MUTING desaparezca de la pantalla (pág. **9**). • Compruebe que el ajuste de AUDIO. Es posible que el función de SAP ha sido seleccionada. (pág. **14**).
Ausencia de color	• Ajuste la opción COLOR del menú VIDEO (pág. **13**). • Compruebe que no se trata de un programa en blanco y negro.
Si aparece sólo nieve en la pantalla	• Compruebe la función CABLE en el menú de PREFERENCIAS (pág. **8**) • Revise las conexiones de la antena o del cable (pág. **3**). • Compruebe si el canal está transmitiendo.
Líneas punteadas o rayas	• Ajuste la posición de la antena. • Mantenga el televisor alejado de otros aparatos electrónicos. Algunos aparatos electrónicos provocan ruidos eléctricos que pueden interferir con la recepción del televisor.
Imágenes dobles o "fantasmas"	• Compruebe su antena area o comuniquese con su proveedor del cable.
No se reciben los canales UHF utilizando una antena	• Compruebe si la función CABLE del menú de PREFERENCIAS está en NO (pág. **8**) • Use AUTO PROGRAMACION para añadir los canales que no estén en la memoria del televisor (pág. **7**).
No se reciben los canales de cable	• Compruebe si la opción CABLE del menú de PREFERENCIAS está en SI (pág. **8**). • Use AUTO PROGRAMACION para añadir los canales que no estén en la memoria del televisor (pág. **7**).
El control remoto no funciona	• Las pilas pueden estar descargadas; cámbielas (pág. **5**).
El televisor necesita una limpieza	• Limpie el televisor con un paño suave y seco. No utilice solventes fuertes como adelgazador de pintura o bencina, que pueden dañar el acabado del mueble.
No se puede cambiar el canal	• Desactive la función FIJAR CANAL(página **11**). • Utilice AUTO PROGRAMACION para añadir canales que no se encuentren en la memoria del televisor (página **7**).

Correcion

Para el modelo KV-21XE40B, las opciones son equivalentes al model KV-21SE40A. Las diferencias en operacion y especificacion se indican en el texto siguiente:

En la pagina 2 de Advertencias, KV-21XE40B se puede alimentar con 120V-220V 50-60 Hz.

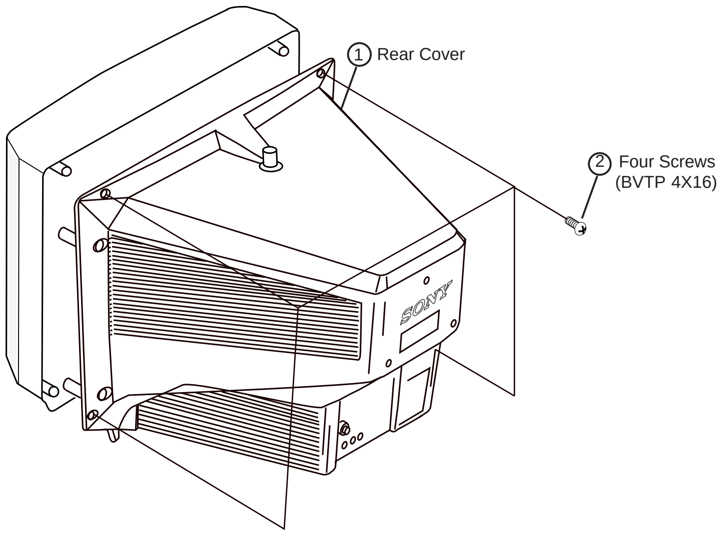
En la pagina 3, el modelo KV-21XE40B no tiene el boton de MAIN POWER. Usted puede encender el televisor oprimiendo TV POWER que se encuentra en el control remoto.

En la pagina 16, el modelo KV-21XE40B tiene las especificaciones siguientes:

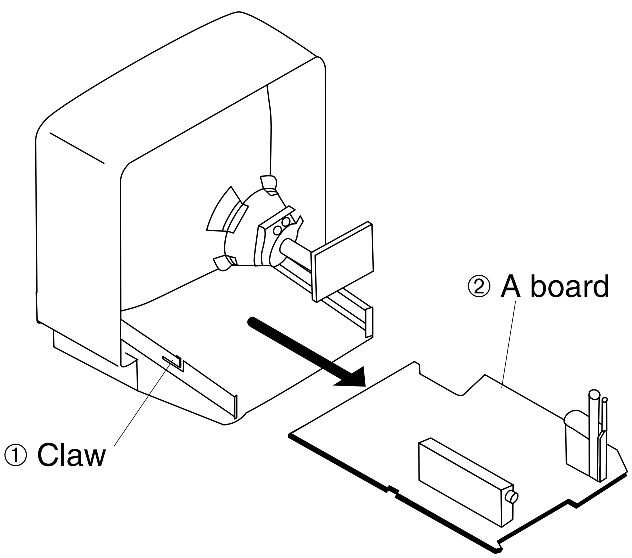
Alimentacion:	120-220V 50-50 Hz
Consumo de energia:	En uso 105W En espera 3W

SECTION 2
DISASSEMBLY

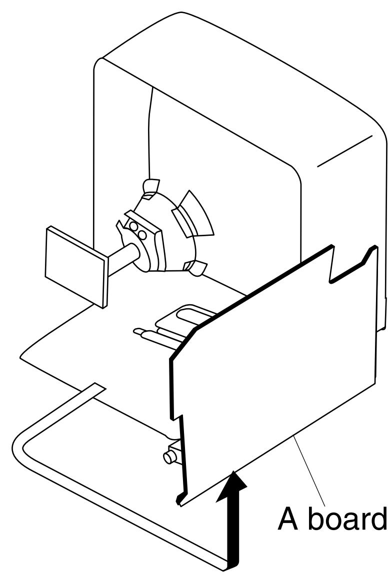
2-1. REAR COVER REMOVAL



2-2. A BOARD REMOVAL



2-3. SERVICE POSITION

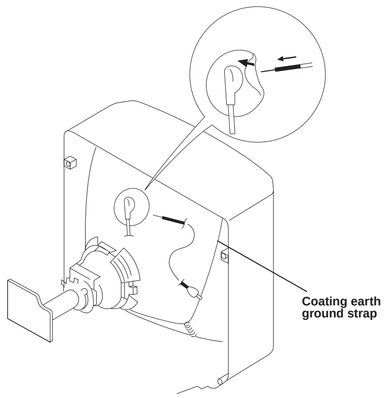


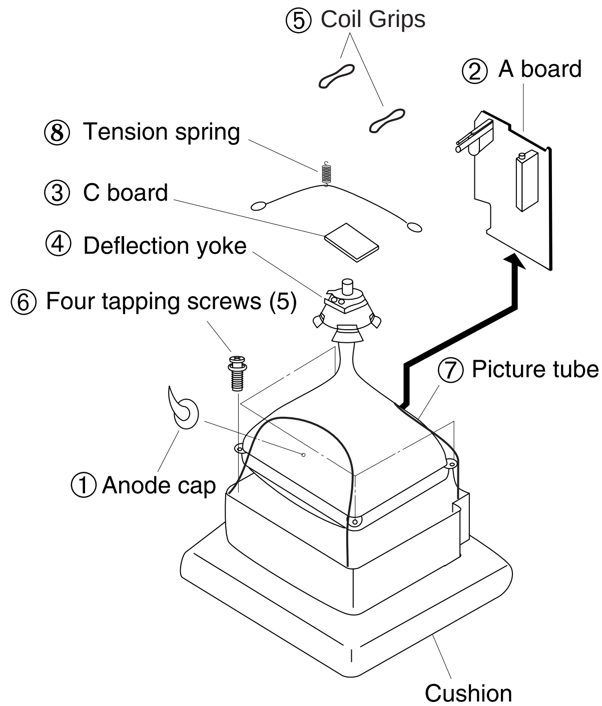
2-4. PICTURE TUBE REMOVAL

WARNING **Before removing anode cap:**

H.V. remains in the CRT even after the power is disconnected.

To avoid electrical shock, discharge CRT before attempting to remove the anode cap : Short between anode and CRT coating earth ground strap.

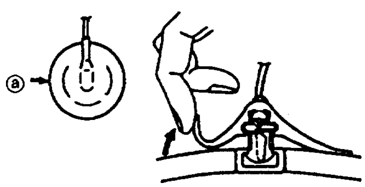




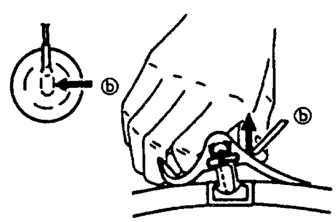
• REMOVAL OF THE ANODE-CAP

NOTE: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon painted on the CRT, after removing the anode.

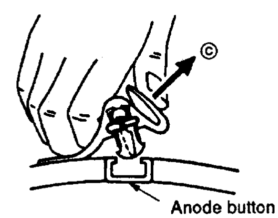
• REMOVAL PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by arrow ⓐ.



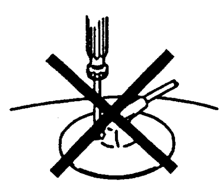
② Use your thumb to pull the rubber cap firmly in the direction indicated by arrow ⓑ.

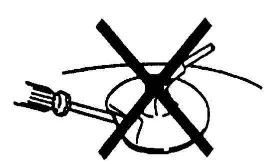


③ When one side of the rubber cap separates from the anode button, the anode-cap can be removed by turning the rubber cap and pulling it in the direction of arrow ⓒ.

• HOW TO HANDLE AN ANODE-CAP

① Do not use sharp objects which may cause damage to the surface of the anode-cap.
② Do not squeeze the rubber covering too hard to avoid damaging the anode-cap. A material fitting called a shatter-hook terminal is built into the rubber.
③ Do not force turn the foot of the rubber cover. This may cause the shatter-hook terminal to protrude and damage the rubber.





SECTION 3
SET-UP ADJUSTMENTS

The following adjustments should be made when a complete realignment is required or a new picture tube is installed. These adjustments should be performed with rated power supply voltage unless otherwise noted.

The controls and switch should be set as follows unless otherwise noted:

PICTURE control .... normal

BRIGHTNESS control .... normal

Perform the adjustments in order as follows:

1. Beam Landing
2. Convergence
3. Focus
4. Screen (G2) and White Balance

Note: Test Equipment Required

1. Color Bar Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital Multimeter

3-1. BEAM LANDING

Preparation:

- Feed in the white pattern signal.
- Before starting, degauss the entire screen.

1. Input a raster signal with the pattern generator.
2. Loosen the deflection yoke mounting screw, and set the purity control to the center as shown in Fig.2.
3. Turn the raster signal of the pattern generator to green.
4. Move the deflection yoke backward, and adjust with the purity control so that green is in the center and red and blue are at the sides evenly. (Fig.3)
5. Move the deflection yoke forward, and adjust so that the entire screen becomes green. (Fig.1)
6. Switch over the raster signal to red and blue and confirm the condition.
7. When the position of the deflection yoke is determined, tighten it with the deflection yoke mounting screw.
8. When landing at the corner is not right, adjust by using the disk magnets. (Fig.4)

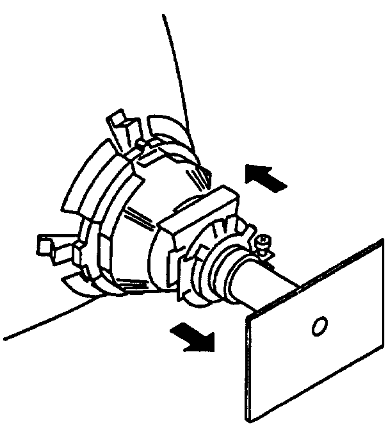


Fig. 1

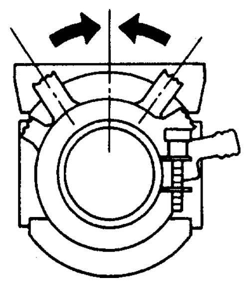


Fig. 2

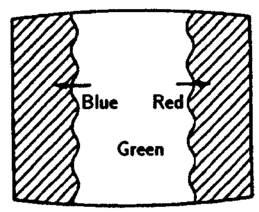


Fig. 3

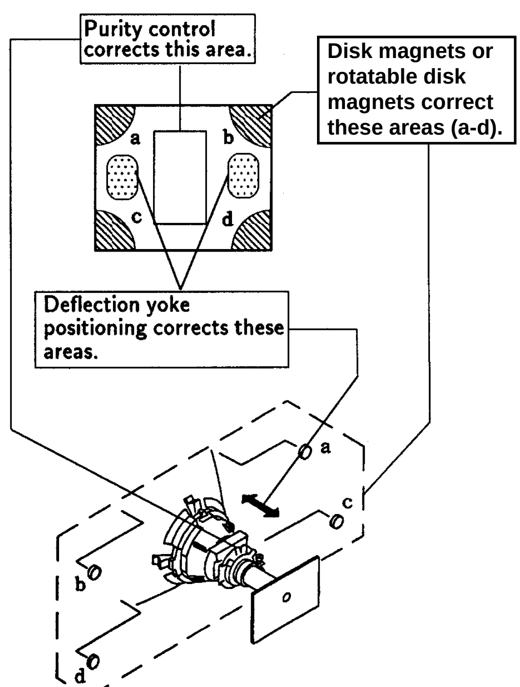


Fig. 4

3-2. CONVERGENCE

Preparation:

- Before starting, perform FOCUS, V. LIN and V. SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Feed in dot pattern.

(1) Vertical Static Convergence

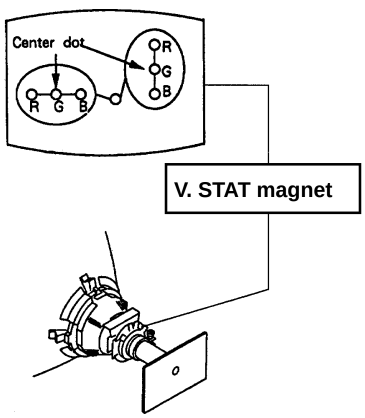
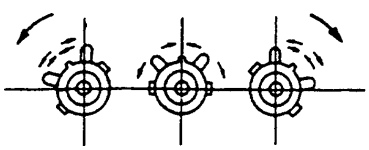


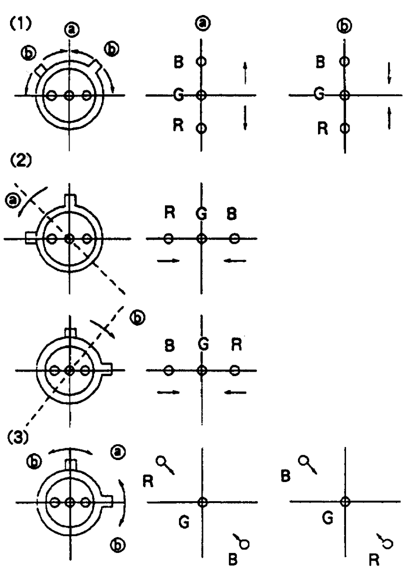
Fig. 5

1. Adjust V. STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)

   Tilt the V. STAT magnet and adjust static convergence to open or close the V. STAT magnet.



2. When the V. STAT magnet is moved in the direction of arrow ⓐ and ⓑ, red, green, and blue dots move as shown below:



If the blue dot does not converge with red and green dots, perform the following steps:

- Move BMC magnet (a) to correct insufficient H. Static convergence.
- Rotate BMC magnet (b) to correct insufficient V. Static convergence.

In either case, repeat Beam Landing Adjustment.

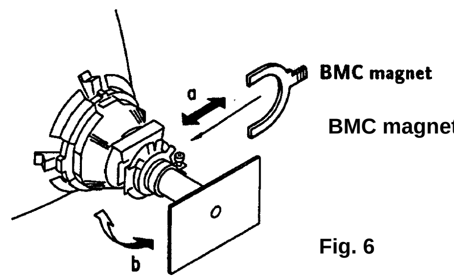


Fig. 6

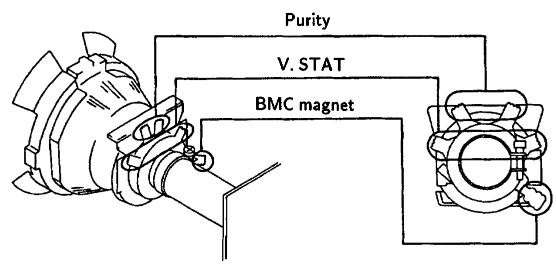


Fig. 7

(2) Dynamic Convergence Adjustment

Preparation:

- Before starting, perform Horizontal and Vertical Static Convergence Adjustment.

1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown below. (Fig. 8)
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.

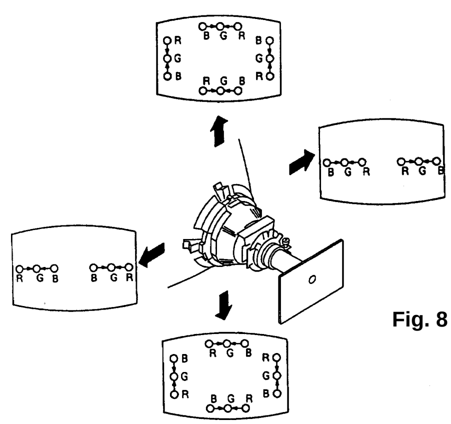


Fig. 8

(3) Screen-corner Convergence

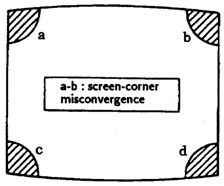
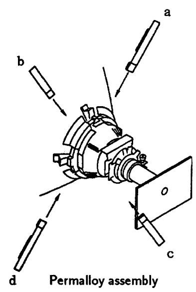


Fig. 9

Affix a permalloy assembly corresponding to the misconverged areas:



3-3. FOCUS

1. Adjust FOCUS control for best picture.

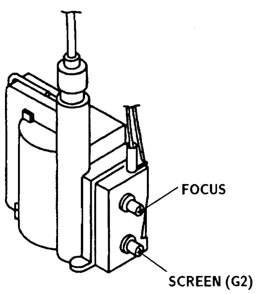
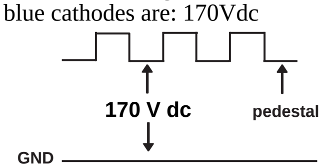


Fig. 10-A

3-4. SCREEN (G2)

1. Input a dots pattern.
2. Set the PICTURE and BRIGHT controls at minimum and COLOR control at normal.
3. Adjust SBRT, GCUT, BCUT in service mode with an oscilloscope as shown in Fig. 11 so that voltages on the red, green, and blue cathodes are: 170Vdc

Fig. 11



4. Observe the screen and adjust:

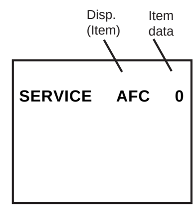
   SCREEN (G2) VR
   to obtain the faintly visible background of dot signal.

3-5. METHOD OF SETTING THE SERVICE ADJUSTMENT MODE

(1) SERVICE MODE PROCEDURE

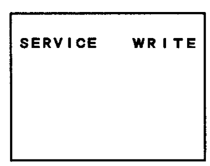
1. Standby mode. (Power off)
2. [DISPLAY] → [5] → [VOL (+)] → [POWER] on the Remote Commander. (Press each button within a second.)

(2) SERVICE ADJUSTMENT MODE IN



3. The CRT displays the item being adjusted.
4. Press [1] or [4] on the Remote Commander to select the item.
5. Press [3] or [6] on the Remote Commander to change the data.
6. Press [MUTING] then [ENTER] to write into memory.

(3) SERVICE ADJUSTMENT MODE MEMORY



[MUTING] Green
↓
[ENTER] Red

7. Turn set off and on to exit.

3-6. WHITE BALANCE ADJUSTMENTS

1. Input an entire white signal.
2. Set to Service adjustment Mode.
3. Set DCOL to "0"
4. Set the PICTURE and BRIGHT to minimum.
5. Adjust with SBRT if necessary.
6. Select GCUT and BCUT with [1] and [4] .
7. Adjust with [3] and [6] for the best white balance.
8. Set the PICTURE and BRIGHT to maximum.
9. Select GDRV and BDRV with [1] and [4] .
10. Adjust with [3] and [6] for the best white balance.
11. Reset DCOL to "1".
12. Write into the memory by pressing [MUTING] then [ENTER] .

SECTION 4
SAFETY RELATED ADJUSTMENTS

[A] BOARD

⧓ R582 CONFIRMATION METHOD (HV HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

The following adjustments should always be performed when replacing the following components which are marked with ◪ on the schematic diagram:

IC301, IC521, IC602, D572, D573, D574, DY, C511, C574, C575, R578, R582, R583, R584, R585, R586,R625, R626, R634, R635, T504 (FBT)

(1) Preparation before Confirmation

1) Turn the POWER switch ON. Input an entirely white signal and set the PICTURE and BRIGHT controls to maximum.

2) Confirm that the voltage between C574(+) and ground is more than: 99.8VDC
when the set is operating normally with 120.0-240.0 ± 2.0 VAC.

(2) Hold-down Operation Confirmation

1) Connect the current meter between Pin 11 of the FBT (T504) and the PCB land where Pin 11 would normally attach.

2) Input a dot signal and set PICTURE and BRIGHTNESS to minimum:
IABL = 95+100/-95µA

3) Confirm the voltage of A board TP-600 is
116.8 ± 0.3VDC

4) Connect the Digital Voltmeter and the DC power supply via diode 1SS119 to C574 (+). (See figure 1.0 on next page.)

5) Increase the DC power voltage gradually until the picture blanks out.

6) Read the digital voltmeter indication.

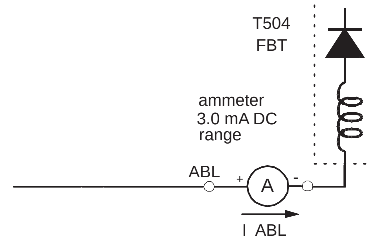
7) Turn DC power source off immediately.
STANDARD
Less than or equal to: 127.3 VDC

8) Input a white signal and set PICTURE and BRIGHTNESS to Max

9) Repeat steps from (4) to (7).
STANDARD
Less than or equal to: 127.3 VDC

(3) Hold-down Readjustment

If the current setting indicated in step 2-2 cannot be met, readjustment should be performed by altering the resistance value of R582, a component marked with ⧓.



B+ VOLTAGE CONFIRMATION AND ADJUSTMENT

The following adjustments should always be performed when replacing the following components which are marked with ◪ on the schematic diagram:.

IC001, IC602, R030, R626, R632, R633, R635, R636, R637, R638, R639

1) Supply $130 \pm ^{2.0}_{0}$ VAC to the set with a variable auto transformer.
2) Input a dot signal.
3) Set the PICTURE control and the BRIGHT control to minimum condition.
4) Set to service adjustment mode.
5) Select PADJ with [1] and [4] .
6) Adjust with [6] to the 0 level.
7) Confirm the voltage of A BOARD TP-600 is less than 125V DC.
8) If step 7 is not satisfied, replace the components, repeat the above steps.
9) Supply 120.0 ± 2.0 VAC to the set with a variable auto transformer.
10) Adjust with [3] and [6] for: 116.8 ± 0.3V DC
11) Write into the memory by pressing [MUTING] then [ENTER].

SECTION 5
CIRCUIT ADJUSTMENTS

5-1. ELECTRICAL ADJUSTMENT BY REMOTE COMMANDER

Use Remote Commander (RM-Y155) to perform circuit adjustments on this model.

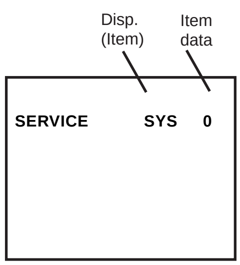
NOTE : Test Equipment Required.
1. Pattern Generator
2. Frequency Counter
3. Digital Multimeter
4. Audio OSC

(1) Method of Setting the Service Adjustment Mode

SERVICE MODE PROCEDURE

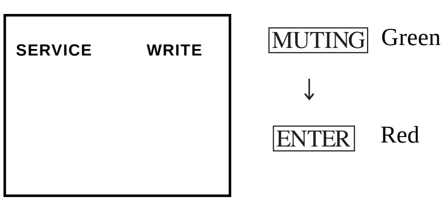
1. Standby mode. (Power off)
2. DISPLAY → 5 → VOL (+) → POWER on the Remote Commander. (Press each button within a second.)

SERVICE ADJUSTMENT MODE IN

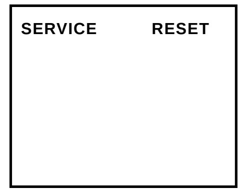


3. The CRT displays the item being adjusted.
4. Press 1 or 4 on the Remote Commander to select the item.
5. Press 3 or 6 on the Remote Commander to change the data.
6. Press MUTING then ENTER to write into memory.

SERVICE ADJUSTMENT MODE MEMORY



7. Press 8 then ENTER on the Remote Commander to initialize.



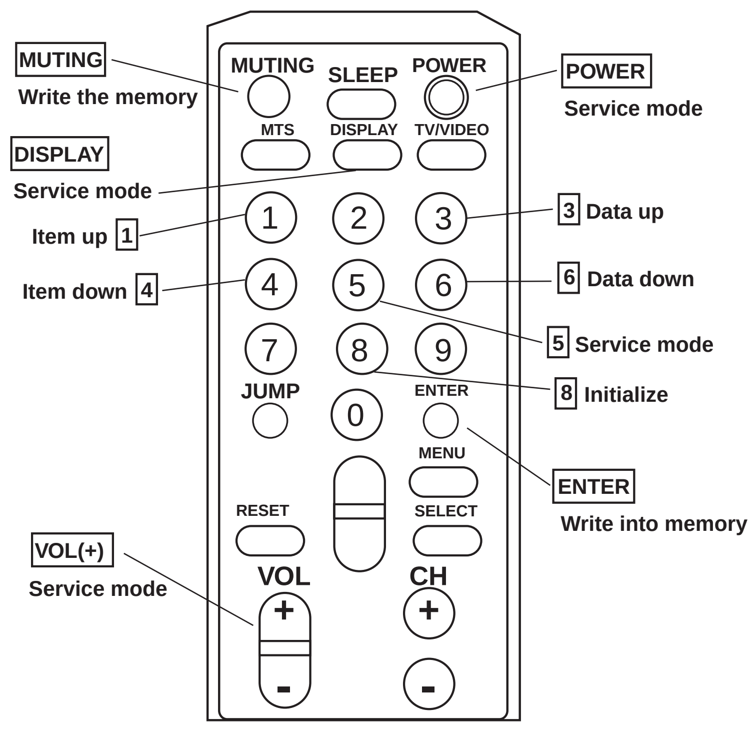
Carry out step 7 when adjusting IDs 0 to 4 and when replacing and adjusting IC003.

8. Turn set off and on to exit.

(2) Memory Write Confirmation Method

1. After adjustment, pull out the plug from the AC outlet, then replace the plug in the AC outlet again.
2. Turn the power switch ON and set to service mode.
3. Call the adjusted items again to confirm they were adjusted.

(3) Adjust Buttons and Indicator



RM-Y155

(4) Item of Adjustments

NO.	ITEM	FUNCTION	DATA RANGE	INITIAL DATA NTSC	PAL-M	PAL-N	VIDEO	AVERAGE DATA
1	HSIZ	HORIZONTAL AMP. ADJ.	0 - 63	31	31	31		31
2	HPOS	HORIZONTAL POS. ADJ.	0 - 63	21	21	19		28
3	VBOW	VRT LINE BOWING ADJ.	0 - 15		6			8
4	VANG	VRT LINE BOW SLANT ADJ.	0 - 15		6			10
5	TRAP	HORIZ. TRAPEZOID ADJ.	0 - 15		15			15
6	PAMP	HORIZ. PIN DISTORTION ADJ.	0 - 63	31	31	31		31
7	CPIN	SAME AS PAMP-SCRN TP/BTM	0 - 63	31	31	31		31
8	VSIZ	VERTICAL AMP. ADJUST	0 - 63	43	43	47		44
9	VPOS	VERTICAL POSITION ADJ.	0 - 63	35	35	28		33
10	VLIN	VERTICAL LINEARITY ADJ.	0 - 15	7	7	7		5
11	SCOR	VERTICAL AMOUNT ADJ.	0 - 15	7	7	7		9
12	VZOM	16:9 CRT Z MODE ON/OFF	0 , 1		0			0
13	EHT	VRT HI-VOLT. CORRECTION	0 - 15		15			15
14	ASP	ASPECT RATIO CONTROL	0 - 63		47			47
15	SCRL	16:9 CRT Z MODE TRAN SCRL	0 - 63		31			31
16	HBLK	RGB OUT WIDTH CONTROL	0 , 1		1			1
17	LBLK	LEFT SCREEN HBLK CONTROL	0 - 15		15			15
18	RBLK	RGT SCREEN HBLK CONTROL	0 - 15		3			3
19	VUSN	V SAW WAVEFORM COMPRES	0 , 1		0			0
20	HDW	H. DRIVE PULSE WIDTH	0 , 1		0			0
21	EWDC	EW/DC ADJUST	0 , 1		0			0
22	LVLN	SCREEN BTM VRT LIN ADJUST	0 - 15		0			0
23	UVLN	SCREEN TOP VRT LIN ADJUST	0 - 15		0			0
24	RDRV	R OUTPUT DRIVE CONTROL	0 - 63		30			32
25	GDRV	G OUTPUT DRIVE CONTROL	0 - 63		24			28
26	BDRV	B OUTPUT DRIVE CONTROL	0 - 63		21			25
27	RCUT	R OUTPUT CUTOFF CONTROL	0 - 15		15			7
28	GCUT	G OUTPUT CUTOFF CONTROL	0 - 15		7			5
29	BCUT	B OUTPUT CUTOFF CONTROL	0 - 15		7			6
30	DCOL	DYNAMIC COLOR ON/OFF	0 , 1		0			1
31	SHUE	SUB HUE	0 - 31		15			15
32	SCOL	SUB COLOR	0 - 31	14	14	14		15
33	SBRT	SUB BRIGHTNESS	0 - 31		7			5
34	RON	R OUTPUT ON/OFF	0 , 1		1			1
35	GON	G OUTPUT ON/OFF	0 , 1		1			1
36	BON	B OUTPUT ON/OFF	0 , 1		1			1
37	AXPL	AXIS PAL	0 , 1		0			0
38	AXNT	AXIS NTSC	0 , 1		0			0
39	CBPF	CHROMA BPF ON/OFF	0 , 1		1			1
40	CTRP	Y TRAP FILTER ON/OFF	0 , 1		0,1:combfilter models			0
41	COFF	COLOR ON/OFF	0 , 1		0			0
42	KOFF	SET COLOR KILLER	0 , 1		0			0
43	SSHP	SUB SHARPNESS	0 - 15		10			10
44	SHPF	SHARPNESS CIRCUIT F0	0 , 1		1		1	1
45	PREL	PRE/OVR SHOOT SWITCHING	0 , 1		0			0
46	Y-DC	DC TRANS RATIO SWITCHING	0 , 1		1			1
47	GAMM	GAMMA CORRECTION AMNT	0 - 3		0			0
48	ABLM	ABL MODE SWITCHING	0 , 1		1			1
49	VTH	ABL C D VTH SWITCHING	0 , 1		1			1
50	YDEL	Y DELAY TIME CONTROL	0 - 15		7			7
51	NCOL	NO COLOR ID	0 , 1		1			1
52	FSC	FSC OUT ON/OFF	0 , 1		'1' for V series, '0' for S,M & trinorma			0
53	K-ID	KILLER ID CONTROL SW	0 , 1		0			0
54	HOSC	H VCO OSCILLATION FREQ	0 - 15		10			10
55	VSS	V SYNC SLICE LEVEL	0 , 1		0			0
56	HSS	H SYNC SLICE LEVEL	0 , 1		0			0
57	HMSK		0 , 1		1			1
58	VTMS	SELECT SIGNAL VTIM PIN	0 - 3		0			0
59	CDMD	V CNT DWN MODE SWITCHING	0 - 3		0		1	1
60	AFC	AFC LOOP GAIN SWITCHING	0 - 3		0		0	0
61	FIFR	FIELD FREQUENCY	0 - 3		'3' for NTSC models, '1' for trinorma			1
62	SBAL	SUB BALANCE	0 - 15		13			13
63	DISP	OSD POSITION	0 - 127		15			15
64	PADJ	POWER ADJUSTMENT	0 - 63		51			47

SERVICE ID0 25

Note: No. 1 through 64 show adjustment order.

(5) Feature ID Map

	KV-	DESTINATION	ID-0	ID-1	ID-2	ID-3	ID-4	ID-5
1	**21XE40B**	(E)	23	3	1	195	51	1

5-2. A BOARD ADJUSTMENTS

H. FREQUENCY ADJUSTMENT

1. Input a monoscope signal.
2. Set to Service adjustment Mode.
3. Connect a frequency counter to base of Q501 (TP-500 H. DRIVE).
4. Select the item of AFC, set to 3 level (free run).
5. Check H. Frequency for the 15650 ± 200 Hz.
6. Select the item of AFC again, adjust the level "0".
7. Write into the memory by pressing [MUTING] then [ENTER] .

V. FREQUENCY ADJUSTMENT

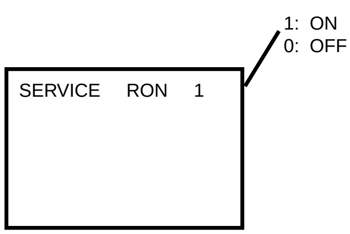
1. Select video 1 with no signal input.
2. Set the conditions with standard setting.
3. Connect the frequency counter across TP-508 or CN501 VDY (+) pin ⑥ connector and ground.
4. Check V. Frequency for the 50 ± 2 Hz.

SUB CONTRACT ADJUSTMENT (SCON)

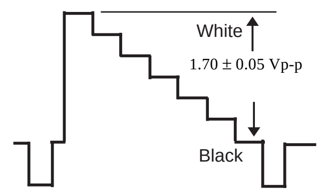
1. Input a color-bar signal.
2. Select the red color.
3. Set to Service adjustment Mode.
4. Select the item DCOL to "0" level.
5. Set the conditions as follows.

PICTURE .... MAX
COLOR .... MIN
BRIGHT .... CENTER

R ON .... ON (1)
G ON .... OFF (0)
B ON .... OFF (0)



6. Connect an oscilloscope to CN1752 Pin ④ or (R OUT) of C Board and ground.
7. Select RDRV with [1] and [4].
8. Adjust with [3] and [6] for: 1.70 ± 0.05 Vp-p.



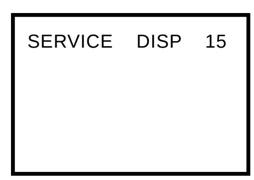
9. Reset the item DCOL to "1" level.
10. Write the memory by pressing [MUTING] then [ENTER].
11. Return the following back to normal after adjustment.

PICTURE .... MAX
COLOR .... CENTER
BRIGHT .... CENTER

R ON .... ON (1)
G ON .... ON (1)
B ON .... ON (1)

DISPLAY POSITION ADJUSTMENT (DISP)

1. Input a color-bar signal.
2. Set to Service adjustment Mode.
3. Select DISP with [1] and [4] .
4. Adjust with [3] and [6] for adjustment of characters to center .
5. Write the memory by pressing [MUTING] then [ENTER] .
6. Check if the text is displayed on the screen.



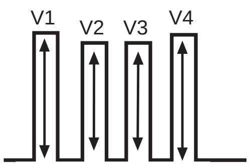
SUB BRIGHT ADJUSTMENT (SBRT)

1. Input a cross-hatch signal.
2. Set to Service adjustment Mode.
3. Set the PICTURE and BRIGHT to minimum.
4. Select SBRT with [1] and [4] .
5. Adjust with [3] and [6] to obtain a faintly visible cross-hatch.
6. Write into the memory by pressing [MUTING] then [ENTER].

SUB HUE, SUB COLOR ADJUSTMENT (SHUE, SCOL)

1. Input a color-bar signal.
2. Set to Service adjustment Mode.

3. Select the item DCOL and set to "0" level.
4. Connect an oscilloscope to CN1752 Pin ⑥ (BLUE OUT) of C Board and ground.
5. Select SHUE and SCOL with [1] and [4] .
6. Adjust with [3] and [6] for the V1 = V4 ± 0.1Vp-p (SCOL) and V2 = V3 ± 0.1Vp-p (SHUE).

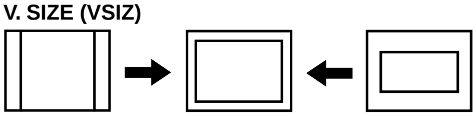


7. Reset the item DCOL to "1" level.
8. Write into the memory by pressing [MUTING] then [ENTER] .

V. SIZE ADJUSTMENT (VSIZ)

1. Input a cross-hatch signal.
2. Set to Service adjustment mode.
3. Select VSIZ with [1] and [4] .
4. Adjust with [3] and [6] for the best vertical size.

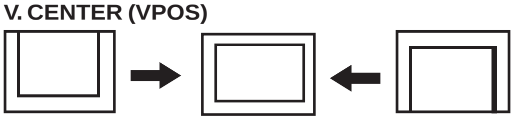
V. SIZE (VSIZ)



V. CENTER ADJUSTMENT (VPOS)

1.Input a cross-hatch signal.
2.Set to Service adjustment Mode.
3.Select VPOS with [1] and [4] .
4.Adjust with [3] and [6] for the best vertical center.
5.Write into the memory by pressing [MUTING] then [ENTER]

V. CENTER (VPOS)

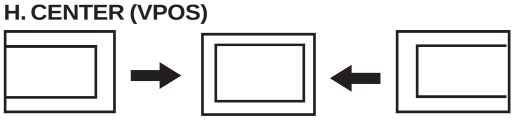


H. CENTER ADJUSTMENT (HPOS)

Note : Perform this adjustment after checking H. FREQUENCY.

1. Input a cross-hatch signal.
2. Set the Service adjustment Mode.
3. Select HPOS with [1] and [4] .
4. Adjust with [3] and [6] for the best horizontal center.
5. Write into the memory by pressing [MUTING] then [ENTER]

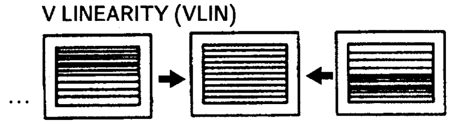
H. CENTER (VPOS)



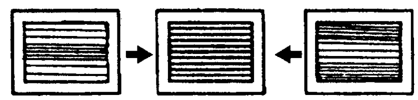
V. LINEARITY (VLIN) AND V CORRECTION

1. Input a cross-hatch signal.
2. V. Correction is automatically adjusted from the circuit and should satisfy the conditions below:

V LINEARITY (VLIN)



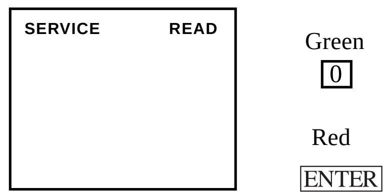
V CORRECTION



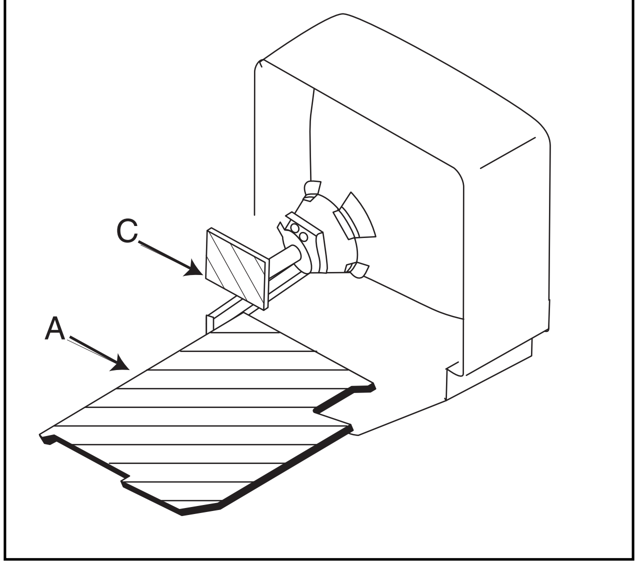
SERVICE ADJUSTMENT MODE MEMORY

1. Change DCOL to "1".
2. After completing all adjustments, press "0" then [ENTER] .

READ FROM MEMORY



6-2. Circuit Boards Location



Part replaced (◪)	Adjustment (⧓)
IC301, IC521, IC602, D572, D573, D574, DY, C511,C574 C575, R578, R582, R583, R584, R585, R586, R625, R626, R634, R635,T504 (FBT)	HV HOLD-DOWN (R582)

IC001, IC602, R030, R626, R632, R633, R635, R636, R637, R638, R639	B+ VOLTAGE CONFIRMATION

- All voltages are in V.
- Voltage is DC with respect to ground unless otherwise noted.
- Readings are taken with a 10MΩ digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerance.
- Circled numbers are waveform references.

- ▬▬ : B + Line
- - - - - - : B - Line
- ⇨ : signal path

Reference Information

RESISTOR	:	RN	METAL FILM
	:	RC	SOLID
	:	FPRD	NON FLAMMABLE CARBON
	:	FUSE	NON FLAMMABLE FUSIBLE
	:	RW	NON FLAMMABLE WIREWOUND
	:	RS	NON FLAMMABLE METAL OXIDE
	:	RB	NON FLAMMABLE CEMENT
	:	※	ADJUSTMENT RESISTOR
COIL	:	LF-8L	MICRO INDUCTOR
CAPACITOR	:	TA	TANTALUM
	:	PS	STYROL
	:	PP	POLYPROPYLENE
	:	PT	MYLAR
	:	MPS	METALIZED POLYESTER
	:	MPP	METALIZED POLYPROPYLENE
	:	ALB	BIPOLAR
	:	ALT	HIGH TEMPERATURE
	:	ALR	HIGH RIPPLE

6-3. Printed Wiring Boards and Schematic Diagrams

Note:
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytic and tantalums.
- All electrolytics are 50V unless otherwise specified
- Indication of resistance, which does not have one for rating electrical power, is as follows:

Pitch: 5mm Rating electrical power 1/4W

- All resistors are in ohms.
  KΩ=1000Ω, MΩ=1000KΩ
- ⊟ nonflammable resistor.
- Δ: internal component.
- ▭: panel designation and adjustment for repair.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

- The components identified by ◪ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

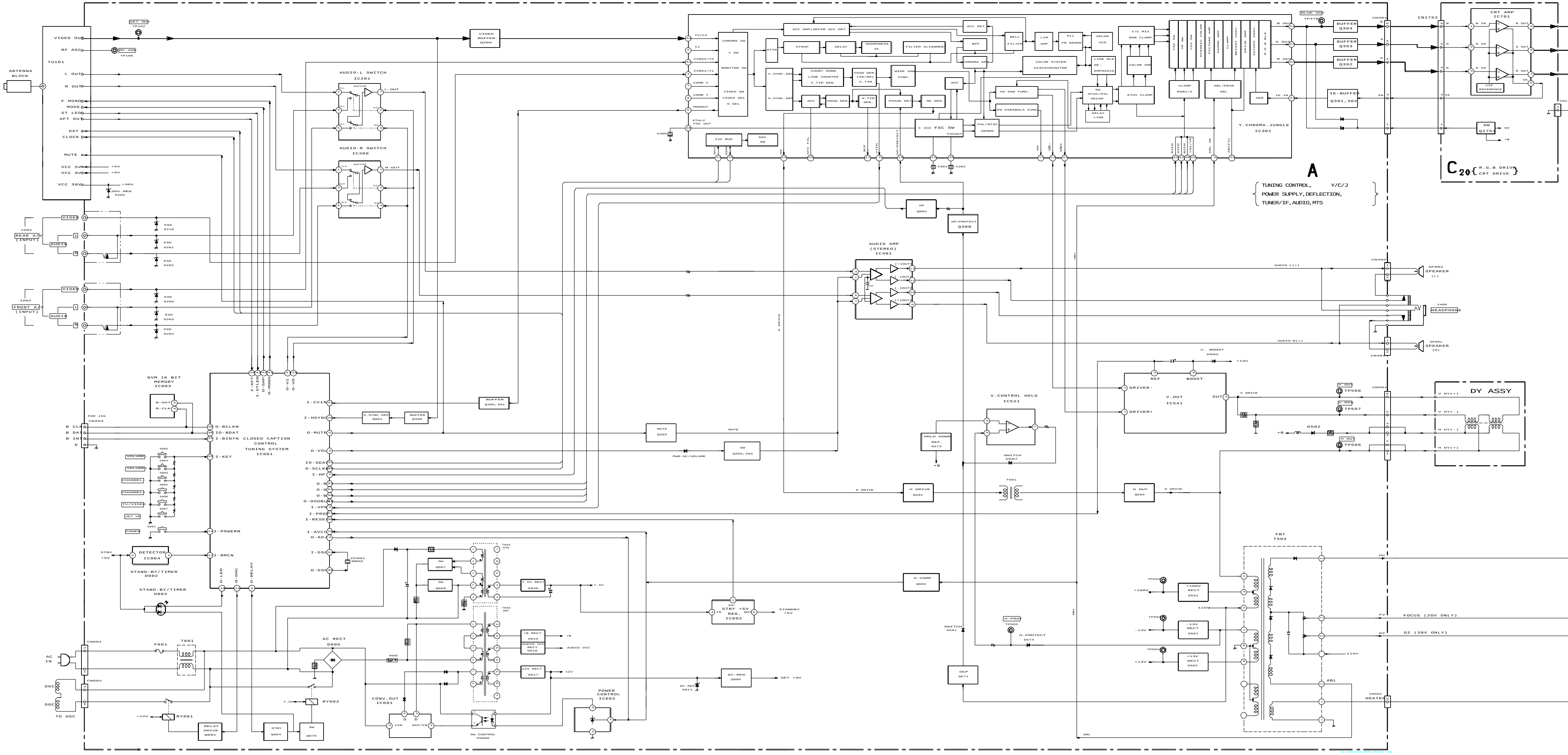
- When replacing components identified by ◪ make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ⧓ and repeat the adjustment until the specified value is achieved.
  (Refer to R582 on pages 21 and 22).

- When replacing parts in the table below be sure to perform the related adjustment.

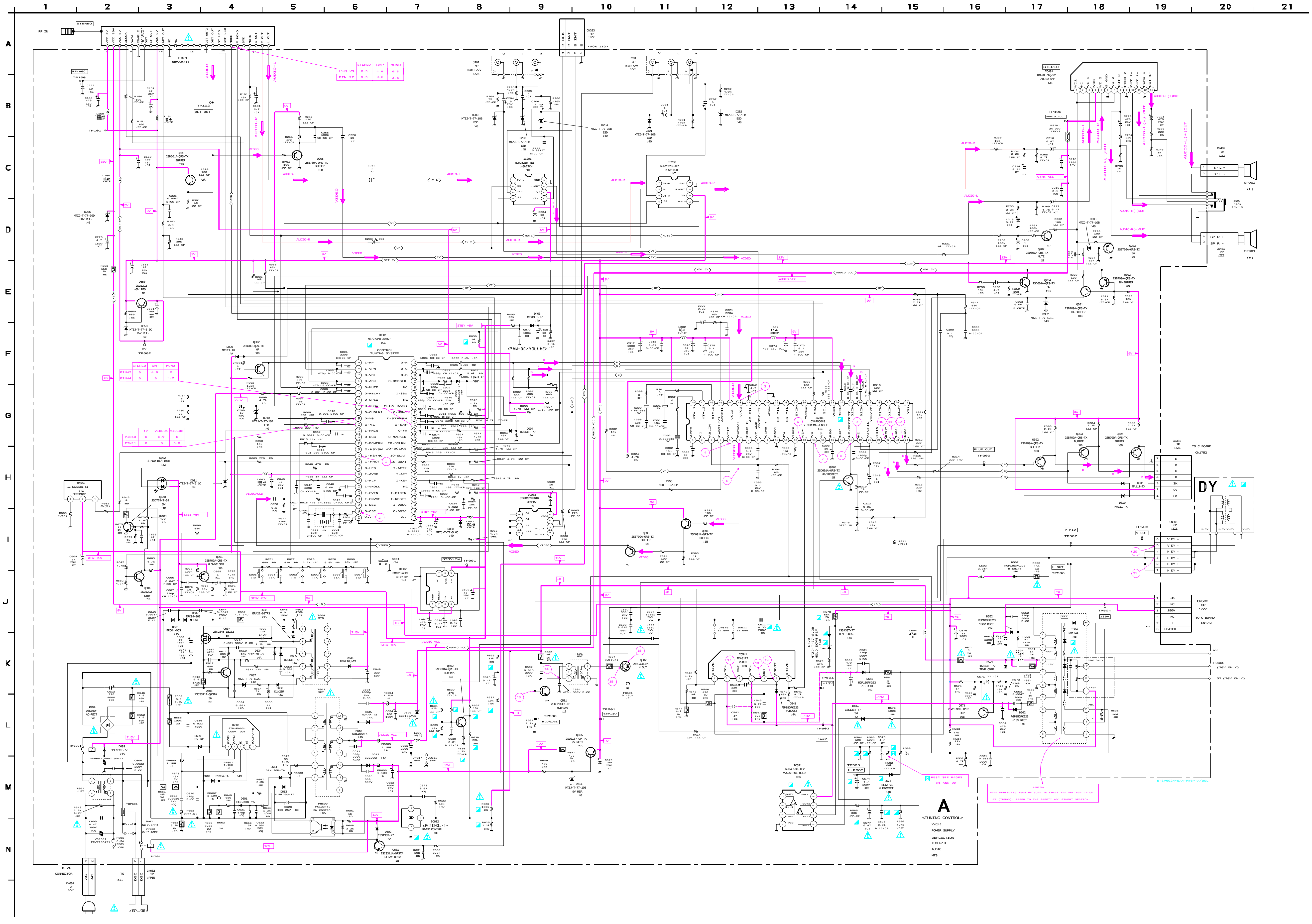
Note: The symbol ▭ display is on the component side.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

The symbol ▭ indicates fast operating fuse. Replace only with fuse of same rating as marked.



A
TUNING CONTROL, Y/C/J
POWER SUPPLY, DEFLECTION,
TUNER/IF, AUDIO, MTS
C20 R.G.B DRIVE
CRT DRIVE
21NX
PICTURE TUBE
CRT AMP
IC701
BUFFER
Q394
BUFFER
Q393
BUFFER
Q392
IK-BUFFER
Q301,302
Y.CHROMA.JUNGLE
IC301
AUDIO-L SWITCH
IC201
AUDIO-R SWITCH
IC200
VIDEO
BUFFER
Q205
ANTENNA
BLOCK
TU101
AUDIO AMP
(STEREO)
IC401
SPEAKER
HEADPHONE
DY ASSY
V.CONTROL HOLD
IC521
V.OUT
IC541
H DRIVE
Q501
H OUT
Q502
FBT
T504
FOCUS (20V ONLY)
G2 (20V ONLY)
HEATER
NVM 1K BIT
MEMORY
IC003
CLOSED CAPTION
CONTROL
TUNING SYSTEM
IC001
DETECTOR
IC004
STAND-BY/TIMER
D002
STBY +5V
REG.
IC002
AC RECT
D605
AC
IN
RELAY
DRIVE
Q604
CONV-OUT
IC601
POWER
CONTROL
IC602
9V-REG
Q605
SET +9V
REAR A/V
(INPUT)
FRONT A/V
(INPUT)
H-COMP
Q802
MUTE
Q202
HP/PROTECT
Q300



A
<TUNING CONTROL>
Y/C/J
POWER SUPPLY
DEFLECTION
TUNER/IF
AUDIO
MTS

A BOARD IC VOLTAGE LIST

IC001

pin	volt
1	0.4
2	4.9
3	0.60
4	3.0
5	0.0
6	0.3
7	NC
8	NC
9	NC
10	0.1
11	0.1
12	5.0
13	0
14	5.0
15	NC
16	0.0
17	-0.3
18	5.0
19	5.0
20	2.0
21	0
22	2.2
23	0
24	2.4
25	2.4
26	GND
27	5.0
28	NC
29	NC
30	5.0
31	5.1
32	NC
33	5.0
34	2.6
35	NC
36	4.8
37	4.8
38	4.8
39	4.8
40	NC
41	0
42	0.1
43	5.0
44	0.1
45	4.9
46	NC
48	NC
49	0
50	0
51	0
52	0

IC002

pin	volt
1	GND
2	5.0
3	4.9
4	12.0
5	5.0
6	GND
7	N/A
8	0

IC003

pin	volt
1	GND
2	GND
3	GND
4	GND
5	4.8
6	4.8
7	GND
8	5.0

IC004

pin	volt
1	3.3
2	5.0
3	0

IC200

pin	volt
1	5.9
2	0.3
3	6.1
4	0.3
5	6.1
6	9.0
7	5.2
8	GND

IC201

pin	volt
1	6.0
2	0.3
3	6.1
4	0.3
5	6.1
6	9.0
7	5.2
8	GND

IC301

pin	volt
1	3.50
2	5.2
3	1.4
4	5.2
5	5.0
6	4.5
7	2.0
8	5.0
9	5.2
10	GND
11	3.8
12	2.5
13	3.6
14	3.5
15	5.9
16	7.7
17	0.7
18	3.5
19	2.9
20	2.7
21	2.2
22	1.9
23	1.7
24	1.8
25	0.1
26	4.0
27	4.02
28	4.0
29	0
30	4.6
31	4.6
32	4.6
33	9.0
34	4.8
35	4.8
36	0
37	4.0
38	4.7
39	4.7
40	GND
41	5.2
42	7.4
43	5.2
44	9.0
45	5.3
46	0
47	2.5
48	0

IC401

pin	volt
1	0.8
2	NC
3	2.4
4	12.6
5	2.4
6	GND
7	0.8
8	6.0
9	GND
10	6.0
11	6.0
12	GND
13	6.0

IC521

pin	volt
1	12.5
2	0.9
3	1.0
4	GND
5	8.7
6	9.7
7	1.3
8	13.0

IC541

pin	volt
1	2.4
2	13.0
3	-11.3
4	-13
5	0.3
6	13.7
7	2.4

IC601

pin	volt
1	1.7
2	0.1
3	154.6
4	18.0
5	GND

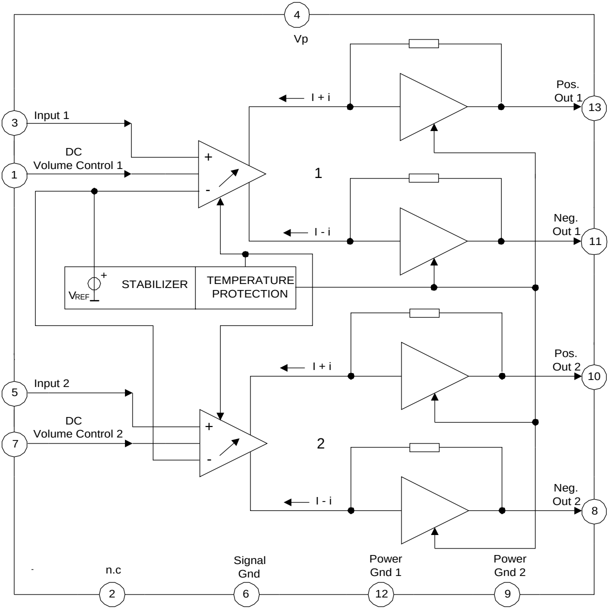
IC 602

pin	volt
1	2.5
2	GND
3	9.5

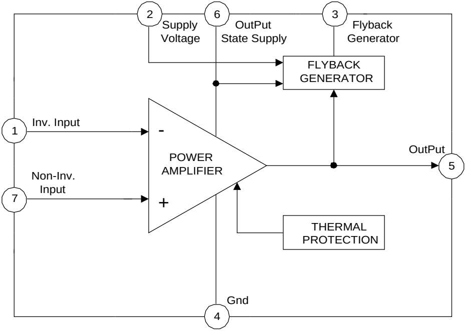
TU101

pin	volt
1	9.0
2	30
3	5.1
4	4.9
5	4.8
6	0
7	7.3
8	1.6
9	9.0
10	3.6
11	0
17	4.6
18	4.4
19	5.0
20	0.4
21	0
22	0.3
23	0
24	0
25	0
26	4.5
27	4.5

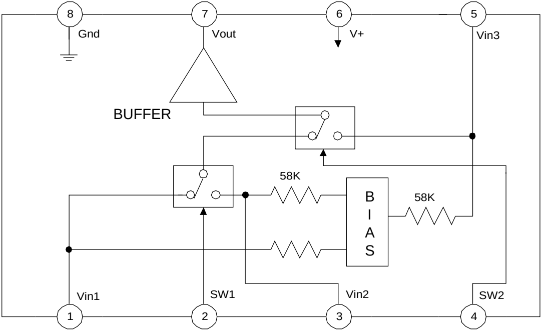
All voltages are in V



A BOARD : IC401 TDA7057Q

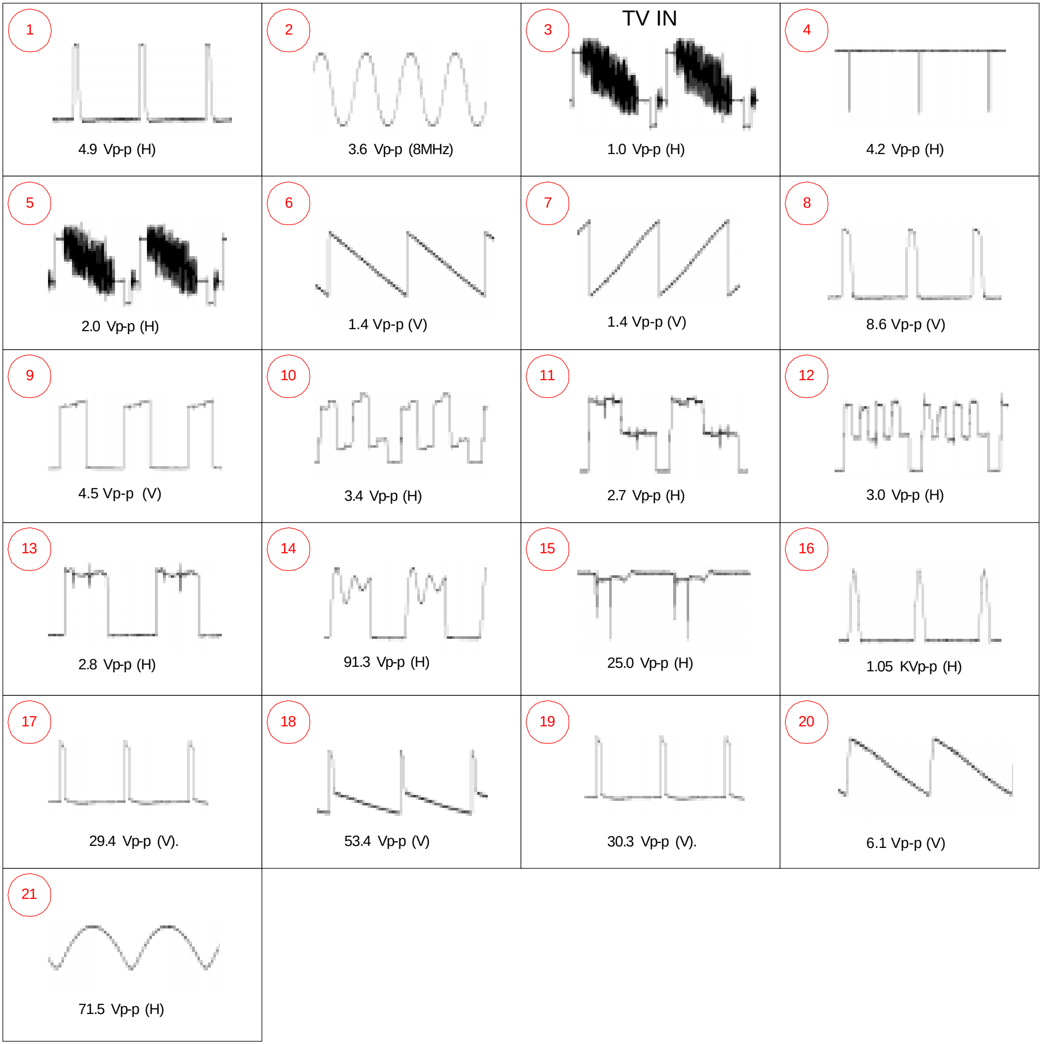


A BOARD : IC541 TDA8172



A BOARD : IC200, 201 NJM2521M

- A BOARD WAVEFORMS



A BOARD TRANSISTOR VOLTAGE LIST

	B	C	E
Q001	5.2	0.7	5.0
Q002	0.7	0.3	0
Q202	0.02	0.7	GND
Q203	1.8	GND	0.7
Q204	0	0.7	GND
Q205	4.6	GND	5.2
Q300	0.4	2.7	GND
Q301	3.7	2.3	3.8
Q302	3.7	GND	3.8
Q305	3.8	GND	4.4
Q390	4.6	9.0	3.9
Q391	4.5	9.0	3.8
Q392	1.8	GND	2.5
Q393	1.7	GND	2.4
Q394	1.9	GND	2.5
Q501	-0.7	47.0	GND
Q502	0	109	GND
Q571	112.5	6.5	113.1
Q601	0	0	GND
Q602	1.0	3.7	0.4
Q604	0.1	2.7	GND
Q605	9.7	9.8	9.0
Q608	31.7	32.4	31.5
Q650	5.7	9.0	5.1
Q670	0.7	0.3	0

All voltages are in V

A BOARD TRANSISTOR VOLTAGE LIST

	D	G	S
Q607	115.2	32.5	31.5

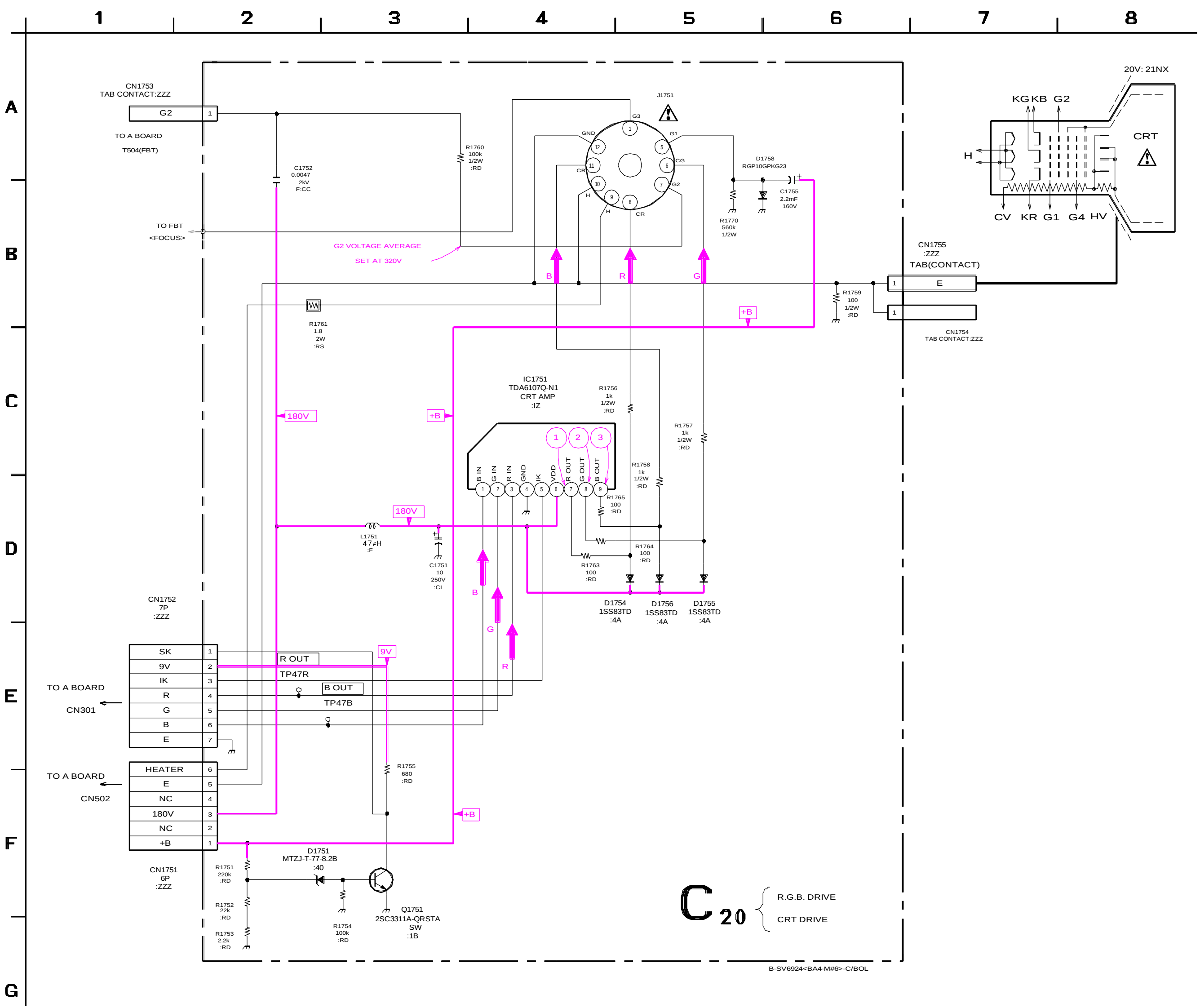
All voltages are in V

A BOARD
SEMICONDUCTOR LOCATION

DIODE	
D001	G-10
D002	G-12
D003	I-8
D004	I-9
D038	I-11
D090	H-10
D201	H-3
D202	G-3
D203	J-13
D204	J-12
D205	G-3
D208	E-10
D209	J-12
D210	I-2
D302	G-8
D310	H-9
D311	H-9
D403	F-11
D502	D-4
D541	F-4
D552	D-3
D561	D-2
D562	D-1
D571	D-3
D572	F-3
D573	F-3
D574	F-4
D581	F-3
D601	C-10
D602	E-10
D603	E-11
D605	D-10
D609	A-9
D610	B-10
D611	D-7
D613	C-8
D614	C-8
D615	A-16
D616	B-7
D617	C-7
D620	B-6
D631	C-11
D632	B-11
D633	B-12
D634	A-13
D635	A-13
D636	C-12
D637	A-13
D638	A-13
D650	H-7

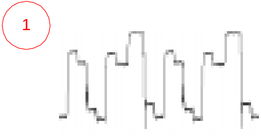
IC	
IC001	I-10
IC002	I-12
IC003	J-11
IC004	G-13
IC200	G-3
IC201	H-4
IC301	H-9
IC401	F-6
IC521	F-4
IC541	E-4
IC601	B-9
IC602	E-8

TRANSISTOR	
Q001	G-10
Q002	H-9
Q202	F-7
Q203	F-10
Q204	F-10
Q205	I-6
Q300	G-9
Q301	H-8
Q302	G-8
Q305	H-10
Q390	J-6
Q391	G-7
Q392	H-10
Q393	G-9
Q394	G-9
Q501	D-6
Q502	B-6
Q571	E-3
Q601	E-9
Q602	G-10
Q604	F-9
Q605	D-8
Q607	A-12
Q608	A-12
Q650	H-6
Q670	E-10

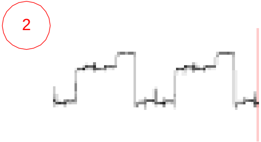


CN1753
TAB CONTACT:ZZZ
G2
TO A BOARD
T504(FBT)
C1752
0.0047
2kV
F:CC
R1760
100k
1/2W
:RD
J1751
G3
GND
G1
CG
CB
H
CR
G2
D1758
RGP10GPKG23
C1755
2.2mF
160V
R1770
560k
1/2W
TO FBT
<FOCUS>
G2 VOLTAGE AVERAGE
SET AT 320V
20V: 21NX
KG KB G2
H
CRT
CV KR G1 G4 HV
CN1755
:ZZZ
TAB(CONTACT)
E
R1759
100
1/2W
:RD
CN1754
TAB CONTACT:ZZZ
+B
R1761
1.8
2W
:RS
IC1751
TDA6107Q-N1
CRT AMP
:IZ
R1756
1k
1/2W
:RD
R1757
1k
1/2W
:RD
R1758
1k
1/2W
:RD
180V
B IN
G IN
R IN
GND
IK
VDD
R OUT
G OUT
B OUT
R1765
100
:RD
L1751
47μH
:F
C1751
10
250V
:CI
R1764
100
:RD
R1763
100
:RD
D1754
1SS83TD
:4A
D1756
1SS83TD
:4A
D1755
1SS83TD
:4A
CN1752
7P
:ZZZ
SK
9V
IK
R
G
B
E
TO A BOARD
CN301
R OUT
TP47R
B OUT
TP47B
9V
R1755
680
:RD
TO A BOARD
CN502
HEATER
E
NC
180V
NC
+B
CN1751
6P
:ZZZ
D1751
MTZJ-T-77-8.2B
:40
R1751
220k
:RD
R1752
22k
:RD
R1753
2.2k
:RD
R1754
100k
:RD
Q1751
2SC3311A-QRSTA
SW
:1B
C 20
R.G.B. DRIVE
CRT DRIVE
B-SV6924<BA4-M#6>-C/BOL

- C BOARD WAVEFORMS



140.0 Vp-p (H)



107.8 Vp-p (H)



120.6 Vp-p (H)

C BOARD IC VOLTAGE LIST

IC1751	
pin	volt
1	2.3
2	2.1
3	2.3
4	0
5	3.8
6	202.5
7	139.3
8	150.4
9	141.8

All voltages are in V

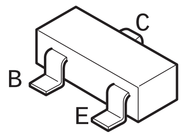
C BOARD TRANSISTOR VOLTAGE LIST

	B	C	E
Q1751	0.7	0.1	0

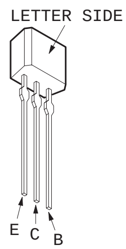
All voltages are in V

6-4. SEMICONDUCTORS

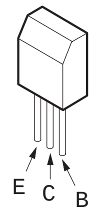
2SA1162-G
2SD601A-Q
2SB709A-QRS-TX



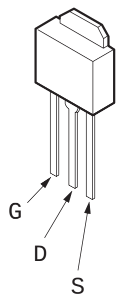
2SA1175-HFE
2SC2785-HFE



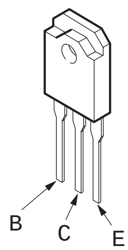
2SC3209LK
2SD1312-K
2SD774-34



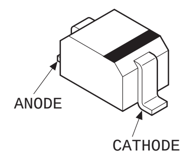
2SK2845-LB102



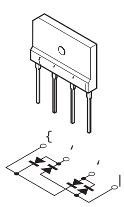
2SC5426-01



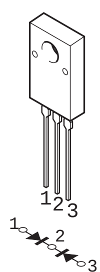
MA111



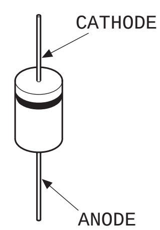
D3SB60F



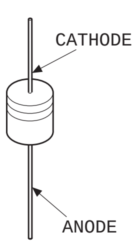
D10SC4M



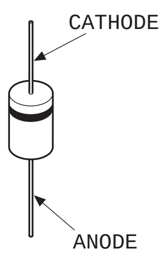
D2S4MF



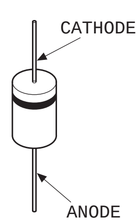
D1N20R
RD6.2ESB2
RD8.23SB2
MTZJ-5.1C
RD5.6ESB2
RD10ESB2
MTZJ-30D
RD3.3ESB2



U05G
D1NL40-TA2
ERA22-08TP3
LNK0120022G
1SS133T-77
ERC06-15S
MDV04-600
S2L60F
EZ0150AV1



D1NL20-TA
EGP20G
EL1Z
1SS83



SECTION 7
EXPLODED VIEWS

- Items with no part number and no description are not stocked because they are seldom required for routine service
- The component parts of an assembly are indicated by the reference numbers in the remarks column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

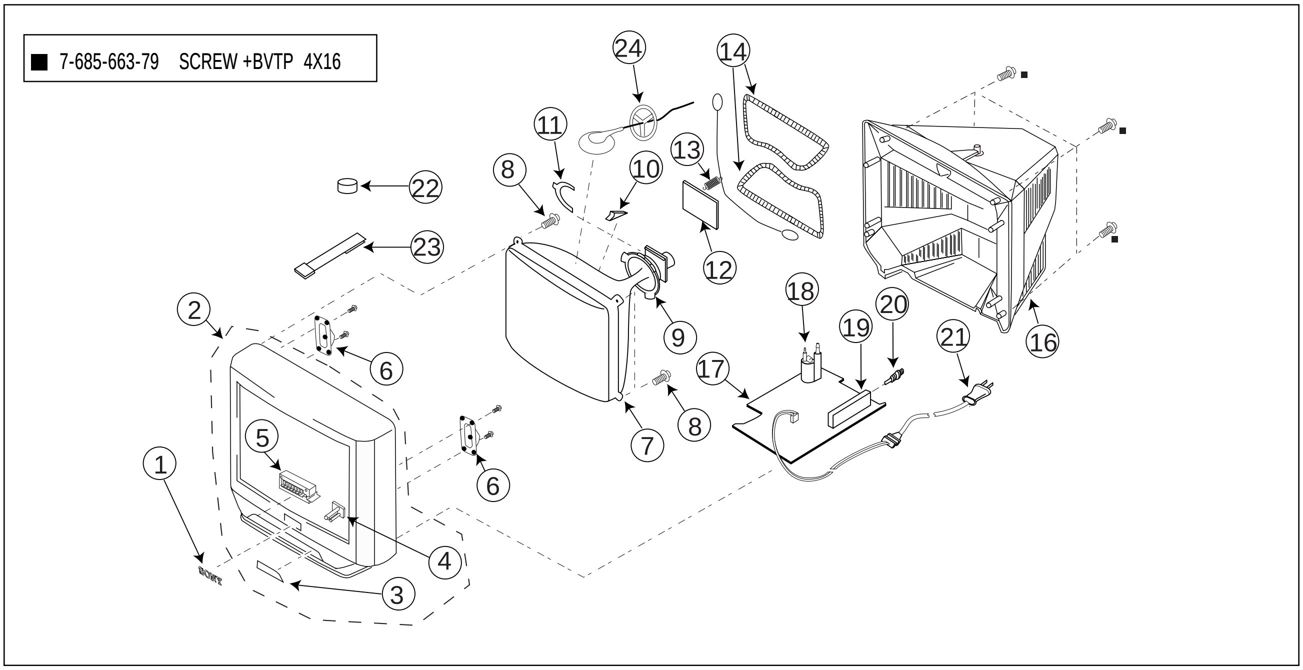
Note:

The components identified with gray shading and a critical symbol (⚠) are critical for safety. Replace only with part number specified.

Note:

Les composants identifies per un trame et une marque ⚠ sont critiques pout la securite. Ne les remplacer que par une piece portant le numero specifie.

7-1. CHASSIS



REF.NO.	PART NO.	DESCRIPTION	REMARK
1	4-046-161-01	EMBLEM (NO.8) SONY	
2	X-4035-232-1	BEZNET, ASSY	3-5
3	4-062-604-01	DOOR	
4	4-062-607-01	GUIDE, LED	
5	4-062-603-01	BUTTON, MULTI	
6	1-505-930-11	SPEAKER (9x5 cm)	
7 ⚠	8-738-768-05	CRT 21NX	
8	4-365-808-01	SCREW (5), TAPPING	
9 ⚠	8-451-440-21	DY Y21NXA-X	
10	4-053-005-01	SPACER, DY	
11	1-452-277-00	MAGNET, BMC	
12 *	A-1331-867-A	C BOARD, MOUNTED	
13 *	4-375-394-01	SPRING, TENSION	
14 ⚠	1-411-941-11	COIL, DEMAGNETIZATION	
16	4-062-602-01	REAR COVER	

REF.NO.	PART NO.	DESCRIPTION	REMARK
17 *	A-1298-700-A	A BOARD, COMPLETE	
18 ⚠	1-453-283-11	TRANSFORMER ASSY, FLYBACK (NX-1744//X4E4)	
19 ⚠	8-598-431-10	TUNER BTF-WA411	
20	1-766-374-11	PLUG, F PIN	
21 ⚠	1-769-796-71	CORD, POWER (WITH CONNECTOR)	
22	1-452-032-00	MAGNET, DISC	
23	4-051-735-22	PIECE (A) 75 CONVERSION CORRECTION	
24	3-704-372-31	HOLDER, HV	

SECTION 8
ELECTRICAL PARTS LIST

Note:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note:

Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

The components identified by ⧗ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

CAPACITORS
- MF = μF

INDUCTORS
- UH = μH, MMH = mH

When indicating parts by reference number, please include the board name.

REF.NO.	PART NO.	DESCRIPTION				REMARK

A

*	**A-1298-700-A**	**A BOARD, COMPLETE**				
	4-382-854-11	SCREW (M3X10), P, SW (+)				

CAPACITOR

REF.NO.	PART NO.	DESCRIPTION			
C001	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C004	1-104-664-11	ELECT	47MF	20%	25V
C005	1-126-960-11	ELECT	1MF	20%	50V
C006	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C007	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C008	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C010	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C011	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C012	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C013	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C014	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C017	1-126-960-11	ELECT	1MF	20%	50V
C019	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C020	1-130-495-00	FILM	0.1MF	5%	50V
C027	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C028	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C030	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C034	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C037	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C038	1-126-941-11	ELECT	470MF	20%	25V
C039	1-126-964-11	ELECT	10MF	20%	50V
C046	1-104-664-11	ELECT	47MF	20%	25V
C047	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C048	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C050	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C051	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C052	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C053	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C060	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C062	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V

REF.NO.	PART NO.	DESCRIPTION			REMARK
C065	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C072	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C074	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C077	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C091	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C092	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C101	1-126-963-11	ELECT	4.7MF	20%	50V
C150	1-126-935-11	ELECT	470MF	20%	16V
C151	1-104-664-11	ELECT	47MF	20%	25V
C160	1-126-382-11	ELECT	100MF	20%	16V
C200	1-107-698-11	ELECT	10MF	20%	25V
C201	1-126-960-11	ELECT	1MF	20%	50V
C202	1-126-960-11	ELECT	1MF	20%	50V
C203	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C204	1-107-698-11	ELECT	10MF	20%	25V
C205	1-126-960-11	ELECT	1MF	20%	50V
C206	1-126-960-11	ELECT	1MF	20%	50V
C214	1-126-957-11	ELECT	0.22MF	20%	50V
C215	1-126-957-11	ELECT	0.22MF	20%	50V
C216	1-126-959-11	ELECT	0.47MF	20%	50V
C217	1-126-959-11	ELECT	0.47MF	20%	50V
C218	1-126-768-11	ELECT	2200MF	20%	16V
C219	1-130-495-00	FILM	0.1MF	5%	50V
C220	1-126-941-11	ELECT	470MF	20%	25V
C221	1-126-941-11	ELECT	470MF	20%	25V
C222	1-126-964-11	ELECT	10MF	20%	50V
C223	1-126-963-11	ELECT	4.7MF	20%	50V
C225	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C226	1-107-635-11	ELECT	4.7MF	20%	160V
C228	1-126-964-11	ELECT	10MF	20%	50V
C232	1-126-960-11	ELECT	1MF	20%	50V
C233	1-126-960-11	ELECT	1MF	20%	50V
C234	1-126-964-11	ELECT	10MF	20%	50V
C255	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C260	1-126-960-11	ELECT	1MF	20%	50V
C300	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C301	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C302	1-163-099-00	CERAMIC CHIP	18PF	5%	50V

A

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION		REMARK	
C303	1-126-964-11	ELECT	10MF	20%	50V
C305	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C306	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C308	1-126-964-11	ELECT	10MF	20%	50V
C309	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C310	1-126-960-11	ELECT	1MF	20%	50V
C311	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C312	1-126-942-61	ELECT	1000MF	20%	25V
C313	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C316	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C317	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C318	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C319	1-126-963-11	ELECT	4.7MF	20%	50V
C320	1-126-957-11	ELECT	0.22MF	20%	50V
C321	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C330	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C363	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C373	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C374	1-126-935-11	ELECT	470MF	20%	16V
C375	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C376	1-104-664-11	ELECT	47MF	20%	25V
C390	1-130-495-00	FILM	0.1MF	5%	50V
C418	1-126-964-11	ELECT	10MF	20%	50V
C502	1-106-371-00	MYLAR	0.015MF	20%	200V
C504	1-102-228-00	CERAMIC	470PF	10%	500V
C505 ⚠	1-162-115-00	CERAMIC	330PF	10%	2KV
C507 ⚠	1-119-865-11	MYLAR	5700PF	3%	2KV
C508	1-106-371-00	MYLAR	0.015MF	20%	200V
C509 ⚠	1-162-115-00	CERAMIC	330PF	10%	2KV
C511 ⚠	1-117-665-11	FILM	0.33MF	5%	200V
C531	1-106-387-00	MYLAR	0.068MF	10%	200V
C541	1-126-969-11	ELECT	220MF	20%	50V
C542	1-126-967-11	ELECT	47MF	20%	50V
C543	1-136-169-00	FILM	0.22MF	5%	50V
C552	1-102-244-00	CERAMIC	220PF	10%	500V
C553	1-107-652-11	ELECT	10MF	20%	250V
C561	1-102-244-00	CERAMIC	220PF	10%	500V
C562	1-126-941-11	ELECT	470MF	20%	25V
C563	1-137-417-11	MYLAR	0.0047MF	10%	200V
C564	1-126-941-11	ELECT	470MF	20%	25V
C571 ⚠	1-126-965-11	ELECT	22MF	20%	50V
C573	1-126-963-11	ELECT	4.7MF	20%	50V
C574	1-107-635-11	ELECT	4.7MF	20%	160V
C575 ⚠	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C576	1-123-024-21	ELECT	33MF		160V
C577 ⚠	1-126-959-11	ELECT	0.47MF	20%	50V
C591 ⚠	1-137-150-11	MYLAR	0.01MF	10%	100V
C600 ⚠	1-136-311-11	FILM	0.47MF	20%	300V
C601	1-117-214-11	CERAMIC	0.001MF	10%	2KV

REF.NO.	PART NO.	DESCRIPTION		REMARK	
C604	1-130-471-00	MYLAR	0.001MF	5%	50V
C605 ⚠	1-113-920-11	CERAMIC	0.0022MF	20%	250V
C611	1-102-002-00	CERAMIC	680PF	10%	500V
C613	1-125-731-11	ELECT(BLOCK)	270MF	20%	400V
C616	1-130-202-00	FILM	0.022MF	10%	400V
C618 ⚠	1-136-619-11	FILM	0.0016MF	3%	2KV
C620	1-102-114-00	CERAMIC	470PF	10%	50V
C621	1-136-356-11	FILM	470PF	5%	50V
C622	1-136-479-11	FILM	0.001MF	5%	50V
C623	1-136-153-00	FILM	0.01MF	5%	50V
C626	1-126-959-11	ELECT	0.47MF	20%	50V
C628	1-104-665-11	ELECT	100MF	20%	25V
C629	1-104-665-11	ELECT	100MF	20%	25V
C630	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C631	1-126-768-11	ELECT	2200MF	20%	16V
C632	1-126-942-61	ELECT	1000MF	20%	25V
C633	1-126-967-11	ELECT	47MF	20%	50V
C634	1-124-347-00	ELECT	100MF	20%	160V
C635	1-164-625-11	CERAMIC	680PF	10%	500V
C643	1-113-924-11	CERAMIC	0.0047MF	20%	250V
C644	1-113-924-11	CERAMIC	0.0047MF	20%	250V
C645	1-137-605-11	FILM	0.01MF	10%	250V
C646	1-107-662-11	ELECT	22MF	20%	250V
C647	1-162-318-11	CERAMIC	0.001MF	10%	500V
C649	1-126-970-11	ELECT	330MF	20%	50V
C650	1-130-471-00	MYLAR	0.001MF	5%	50V
C651	1-126-382-11	ELECT	100MF	20%	16V
C653	1-104-664-11	ELECT	47MF	20%	25V
C656	1-126-965-11	ELECT	22MF	20%	50V
C657	1-130-467-00	MYLAR	470PF	5%	50V
C686	1-107-662-11	ELECT	22MF	20%	250V
C690	1-126-959-11	ELECT	0.47MF	20%	50V
C691	1-126-941-11	ELECT	470MF	20%	25V
C692	1-104-664-11	ELECT	47MF	20%	25V
C693	1-137-194-91	FILM	0.47MF	5%	50V

FILTER

CF001	1-767-487-11	VIBRATOR, CRYSTAL	

CONNECTOR

CN203 *	1-560-124-00	PLUG, CONNECTOR (2.5MM)	4P
CN301	1-564-510-11	PLUG, CONNECTOR	7P
CN401	1-564-505-11	PLUG, CONNECTOR	2P
CN402	1-564-505-11	PLUG, CONNECTOR	2P
CN501 *	1-580-798-11	CONNECTOR PIN (DY)	6P

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

A

REF.NO.	PART NO.	DESCRIPTION	REMARK
CN502 *	1-564-509-11	PLUG, CONNECTOR	6P
CN601 *	1-580-843-11	PIN, CONNECTOR (POWER)	
CN602	1-508-786-00	PIN, CONNECTOR (5MM PITCH)	2P

DIODE

REF.NO.	PART NO.	DESCRIPTION	REMARK
D001	8-719-921-44	DIODE MTZJ-5.1C	
D002	1-810-039-21	LED UNIT	
D003	8-719-991-33	DIODE 1SS133T-77	
D004	8-719-991-33	DIODE 1SS133T-77	
D038	8-719-109-89	DIODE RD5.6ESB2	
D090	8-719-404-49	DIODE MA111	
D201	8-719-110-17	DIODE RD10ESB2	
D202	8-719-110-17	DIODE RD10ESB2	
D203	8-719-110-17	DIODE RD10ESB2	
D204	8-719-110-17	DIODE RD10ESB2	
D205	8-719-982-22	DIODE MTZJ-30D	
D208	8-719-110-17	DIODE RD10ESB2	
D209	8-719-110-17	DIODE RD10ESB2	
D210	8-719-110-17	DIODE RD10ESB2	
D302	8-719-921-44	DIODE MTZJ-5.1C	
D310	8-719-404-49	DIODE MA111	
D311	8-719-404-49	DIODE MA111	
D403	8-719-991-33	DIODE 1SS133T-77	
D502	8-719-302-43	DIODE EL1Z	
D541	8-719-908-03	DIODE GP08D	
D552	8-719-302-43	DIODE EL1Z	
D561	8-719-979-85	DIODE EGP20G	
D562	8-719-979-85	DIODE EGP20G	
D571 ⚠	8-719-991-33	DIODE 1SS133T-77	
D572	8-719-991-33	DIODE 1SS133T-77	
D573	8-719-110-08	DIODE RD8.2ESB2	
D574 ⚠	8-719-302-43	DIODE EL1Z	
D581 ⚠	8-719-991-33	DIODE 1SS133T-77	
D601	8-719-063-70	DIODE D1NL20U	
D602	8-719-991-33	DIODE 1SS133T-77	
D603	8-719-991-33	DIODE 1SS133T-77	
D605 ⚠	8-719-510-51	DIODE D3SB60F	
D609	8-719-311-31	DIODE RU-1P	
D610	8-719-510-02	DIODED1NS4	
D611	8-719-110-17	DIODE RD10ESB2	
D613	8-719-063-70	DIODE D1NL20U	
D614	8-719-063-70	DIODE D1NL20U	
D615	8-719-312-10	DIODE RU4AM-T3	
D616	8-719-510-73	DIODE S3L20UF4	
D617	8-719-027-43	DIODE S2L20UF	
D620 ⚠	8-719-057-52	DIODE EZ0150AV1	
D631	8-719-911-55	DIODE U05G	
D632	8-719-911-55	DIODE U05G	
D633	8-719-948-45	DIODE ERA22-08	
D634	8-719-991-33	DIODE 1SS133T-77	
D635	8-719-991-33	DIODE 1SS133T-77	
D636	8-719-063-70	DIODE D1NL20U	
D637	8-719-109-93	DIODE RD6.2ESB2	
D638	8-719-510-48	DIODE D1N20R	
D650	8-719-109-89	DIODE RD5.6ESB2	

FUSE

REF.NO.	PART NO.	DESCRIPTION	REMARK
F601 ⚠	1-532-506-51	FUSE 6.3A/250V	

FERRITE BEAD

REF.NO.	PART NO.	DESCRIPTION	REMARK
FB501	1-410-396-41	FERRITE 0.45UH	
FB600	1-410-397-21	FERRITE 1.1UH	
FB601	1-410-397-21	FERRITE 1.1UH	
FB602	1-410-397-21	FERRITE 1.1UH	
FB603	1-412-911-11	FERRITE	
FB604	1-410-397-21	FERRITE 1.1UH	
FB605	1-410-397-21	FERRITE 1.1UH	
FB606	1-410-397-21	FERRITE 1.1UH	

IC

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC001	8-759-540-75	IC M37273M8-204SP	
IC002	8-759-371-21	IC MM1319AFBE	
IC003	8-759-527-74	IC M24C02-MN6T	
IC004	8-742-014-11	HYB IC SBX1981-51	
IC200	8-759-450-93	IC NJM2521M-TE1	
IC201	8-759-450-93	IC NJM2521M-TE1	
IC301	8-752-082-35	IC CXA2060AS	
IC401	8-759-490-17	IC TDA7057AQ/N2	
IC521 ⚠	8-759-100-96	IC UPC4558G2	
IC541	8-759-980-58	IC TDA8172	
IC601 ⚠	8-749-013-75	IC STR-F6654	
IC602 ⚠	8-759-198-31	IC UPC1093J-1-T	

JACK

REF.NO.	PART NO.	DESCRIPTION	REMARK
J201	1-580-443-11	JACK, PIN 3P	
J202	1-691-110-11	JACK, PIN 3P	
J400	1-568-267-21	JACK	

CHIP CONDUCTOR

REF.NO.	PART NO.	DESCRIPTION	REMARK
JR001	1-216-295-91	SHORT	
JR002	1-216-295-91	SHORT	

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Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION		REMARK

COIL

REF.NO.	PART NO.	DESCRIPTION		REMARK
L001	1-410-470-11	INDUCTOR	10UH	
L002	1-412-032-11	INDUCTOR CHIP	100UH	
L003	1-412-032-11	INDUCTOR CHIP	100UH	
L150	1-412-032-11	INDUCTOR CHIP	100UH	
L151	1-412-029-11	INDUCTOR CHIP	10UH	
L160	1-412-029-11	INDUCTOR CHIP	10UH	
L301	1-412-031-11	INDUCTOR CHIP	47UH	
L302	1-412-029-11	INDUCTOR CHIP	10UH	
L503	1-412-553-11	INDUCTOR	3.3MMH	
L504	1-412-533-21	INDUCTOR	47UH	
L591 ⚠	1-412-531-31	INDUCTOR	33UH	

PHOTO COUPLER

REF.NO.	PART NO.	DESCRIPTION		REMARK
PH600	8-749-010-64	PHOTO COUPLER	PC123F2	

IC LINK

REF.NO.	PART NO.	DESCRIPTION		REMARK
PS201	1-532-984-11	LINK, IC	2A/90V	

TRANSISTOR

REF.NO.	PART NO.	DESCRIPTION		REMARK
Q001	8-729-216-22	TRANSISTOR	2SA1162-G	
Q002	8-729-216-22	TRANSISTOR	2SA1162-G	
Q202	8-729-422-27	TRANSISTOR	2SD601A-Q	
Q203	8-729-216-22	TRANSISTOR	2SA1162-G	
Q204	8-729-422-27	TRANSISTOR	2SD601A-Q	
Q205	8-729-216-22	TRANSISTOR	2SA1162-G	
Q300 ⚠	8-729-422-27	TRANSISTOR	2SD601A-Q	
Q301	8-729-216-22	TRANSISTOR	2SA1162-G	
Q302	8-729-216-22	TRANSISTOR	2SA1162-G	
Q305	8-729-216-22	TRANSISTOR	2SA1162-G	
Q390	8-729-422-27	TRANSISTOR	2SD601A-Q	
Q391	8-729-422-27	TRANSISTOR	2SD601A-Q	
Q392	8-729-216-22	TRANSISTOR	2SA1162-G	
Q393	8-729-216-22	TRANSISTOR	2SA1162-G	
Q394	8-729-216-22	TRANSISTOR	2SA1162-G	
Q501	8-729-140-50	TRANSISTOR	2SC3209LK	
Q502 ⚠	8-729-043-43	TRANSISTOR	2SC5426-01	
Q571 ⚠	8-729-200-17	TRANSISTOR	2SA1091-O	
Q601	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q602	8-729-422-27	TRANSISTOR	2SD601A-Q	
Q604	8-729-111-55	TRANSISTOR	2SD1312-K	
Q605	8-729-423-99	TRANSISTOR	2SD2137-OP	
Q607	8-729-044-30	TRANSISTOR	SK2845-LB102	
Q608	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q650	8-729-111-55	TRANSISTOR	2SD1312-K	
Q670	8-729-140-96	TRANSISTOR	2SD774-34	

RESISTOR

REF.NO.	PART NO.	DESCRIPTION			REMARK
R001	1-249-429-11	CARBON	10K	5%	1/4W
R002	1-249-429-11	CARBON	10K	5%	1/4W
R003	1-216-033-00	RES, CHIP	220	5%	1/10W
R004	1-216-073-00	RES, CHIP	10K	5%	1/10W
R005	1-247-815-91	CARBON	220	5%	1/4W
R007	1-216-025-91	RES, CHIP	100	5%	1/10W
R008	1-216-033-00	RES, CHIP	220	5%	1/10W
R009	1-247-815-91	CARBON	220	5%	1/4W
R010	1-216-033-00	RES, CHIP	220	5%	1/10W
R011	1-247-815-91	CARBON	220	5%	1/4W
R013	1-247-863-91	CARBON	22K	5%	1/4W
R016	1-249-413-11	CARBON	470	5%	1/4W
R017	1-216-113-00	RES, CHIP	470K	5%	1/10W
R018	1-249-417-11	CARBON	1K	5%	1/4W
R019	1-249-425-11	CARBON	4.7K	5%	1/4W
R020	1-249-427-11	CARBON	6.8K	5%	1/4W
R021	1-249-415-11	CARBON	680	5%	1/4W
R022	1-249-416-11	CARBON	820	5%	1/4W
R023	1-249-421-11	CARBON	2.2K	5%	1/4W
R025	1-249-426-11	CARBON	5.6K	5%	1/4W
R026	1-249-426-11	CARBON	5.6K	5%	1/4W
R027	1-249-426-11	CARBON	5.6K	5%	1/4W
R028	1-216-049-91	RES, CHIP	1K	5%	1/10W
R030	1-249-429-11	CARBON	10K	5%	1/4W
R031	1-216-045-00	RES, CHIP	680	5%	1/10W
R032	1-216-033-00	RES, CHIP	220	5%	1/10W
R033	1-247-815-91	CARBON	220	5%	1/4W
R038	1-216-049-91	RES, CHIP	1K	5%	1/10W
R040	1-249-413-11	CARBON	470	5%	1/4W
R043	1-249-417-11	CARBON	1K	5%	1/4W
R044	1-216-033-00	RES, CHIP	220	5%	1/10W
R045	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R046	1-216-033-00	RES, CHIP	220	5%	1/10W
R047	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R048	1-216-025-91	RES, CHIP	100	5%	1/10W
R049	1-216-089-91	RES, CHIP	47K	5%	1/10W
R050	1-249-429-11	CARBON	10K	5%	1/4W
R051	1-216-033-00	RES, CHIP	220	5%	1/10W
R054	1-216-073-00	RES, CHIP	10K	5%	1/10W
R056	1-249-425-11	CARBON	4.7K	5%	1/4W
R057	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R058	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R065	1-216-033-00	RES, CHIP	220	5%	1/10W

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

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REF.NO.	PART NO.	DESCRIPTION			REMARK
R066	1-216-033-00	RES, CHIP	220	5%	1/10W
R070	1-249-425-11	CARBON	4.7K	5%	1/4W
R071	1-249-425-11	CARBON	4.7K	5%	1/4W
R072	1-247-815-91	CARBON	220	5%	1/4W
R073	1-249-425-11	CARBON	4.7K	5%	1/4W
R074	1-216-073-00	RES, CHIP	10K	5%	1/10W
R075	1-216-073-00	RES, CHIP	10K	5%	1/10W
R076	1-216-121-91	RES, CHIP	1M	5%	1/10W
R077	1-216-097-91	RES, CHIP	100K	5%	1/10W
R081	1-249-413-11	CARBON	470	5%	1/4W
R085	1-216-073-00	RES, CHIP	10K	5%	1/10W
R086	1-216-073-00	RES, CHIP	10K	5%	1/10W
R087	1-216-045-00	RES, CHIP	680	5%	1/10W
R088	1-216-045-00	RES, CHIP	680	5%	1/10W
R089	1-216-045-00	RES, CHIP	680	5%	1/10W
R090	1-249-429-11	CARBON	10K	5%	1/4W
R091	1-249-429-11	CARBON	10K	5%	1/4W
R092	1-216-051-00	RES, CHIP	1.2K	5%	1/10W
R096	1-216-045-00	RES, CHIP	680	5%	1/10W
R099	1-249-425-11	CARBON	4.7K	5%	1/4W
R101	1-216-073-00	RES, CHIP	10K	5%	1/10W
R150	1-216-025-91	RES, CHIP	100	5%	1/10W
R151	1-216-025-91	RES, CHIP	100	5%	1/10W
R201	1-216-113-00	RES, CHIP	470K	5%	1/10W
R202	1-216-113-00	RES, CHIP	470K	5%	1/10W
R204	1-216-022-00	RES, CHIP	75	5%	1/10W
R205	1-247-895-91	CARBON	470K	5%	1/4W
R206	1-247-895-91	CARBON	470K	5%	1/4W
R230	1-216-073-00	RES, CHIP	10K	5%	1/10W
R231	1-216-073-00	RES, CHIP	10K	5%	1/10W
R234	1-216-057-00	RES, CHIP	2.2K	5%	1/10W
R235	1-216-057-00	RES, CHIP	2.2K	5%	1/10W
R237	1-247-815-91	CARBON	220	5%	1/4W
R238	1-249-417-11	CARBON	1K	5%	1/4W
R239	1-247-815-91	CARBON	220	5%	1/4W
R240	1-249-417-11	CARBON	1K	5%	1/4W
R241	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R242	1-249-434-11	CARBON	27K	5%	1/4W
R243	1-216-689-11	RES, CHIP	39K	5%	1/10W
R251	1-216-041-00	RES, CHIP	470	5%	1/10W
R252	1-216-041-00	RES, CHIP	470	5%	1/10W
R253	1-215-899-11	METAL OXIDE	15K	5%	2W F
R254	1-216-025-91	RES, CHIP	100	5%	1/10W
R255	1-216-025-91	RES, CHIP	100	5%	1/10W
R256	1-249-425-11	CARBON	4.7K	5%	1/4W
R257	1-216-073-00	RES, CHIP	10K	5%	1/10W
R258	1-249-429-11	CARBON	10K	5%	1/4W
R259	1-216-073-00	RES, CHIP	10K	5%	1/10W
R260	1-216-097-91	RES, CHIP	100K	5%	1/10W

REF.NO.	PART NO.	DESCRIPTION			REMARK
R261	1-216-097-91	RES, CHIP	100K	5%	1/10W
R262	1-216-025-91	RES, CHIP	100	5%	1/10W
R268	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R269	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R280	1-216-022-00	RES, CHIP	75	5%	1/10W
R284	1-216-295-91	SHORT			
R290	1-216-025-91	RES, CHIP	100	5%	1/10W
R300	1-216-295-91	SHORT			
R301	1-216-295-91	SHORT			
R302	1-216-295-91	SHORT			
R304	1-216-073-00	RES, CHIP	10K	5%	1/10W
R306	1-216-675-11	METAL CHIP	10K	0.50%	1/10W
R307	1-216-075-00	RES, CHIP	12K	5%	1/10W
R310	1-216-049-91	RES, CHIP	1K	5%	1/10W
R312	1-216-033-00	RES, CHIP	220	5%	1/10W
R313	1-247-815-91	CARBON	220	5%	1/4W
R314	1-247-815-91	CARBON	220	5%	1/4W
R315	1-247-815-91	CARBON	220	5%	1/4W
R316	1-216-025-91	RES, CHIP	100	5%	1/10W
R318	1-216-073-00	RES, CHIP	10K	5%	1/10W
R319	1-216-073-00	RES, CHIP	10K	5%	1/10W
R320	8-719-976-99	DIODE DTZ5.1B			
R321	1-216-069-00	RES, CHIP	6.8K	5%	1/10W
R322	1-216-073-00	RES, CHIP	10K	5%	1/10W
R324	1-249-425-11	CARBON	4.7K	5%	1/4W
R329	1-216-025-91	RES, CHIP	100	5%	1/10W
R330	1-216-025-91	RES, CHIP	100	5%	1/10W
R331	1-216-025-91	RES, CHIP	100	5%	1/10W
R347	1-216-045-00	RES, CHIP	680	5%	1/10W
R356	1-216-057-00	RES, CHIP	2.2K	5%	1/10W
R383	1-216-057-00	RES, CHIP	2.2K	5%	1/10W
R384	1-216-057-00	RES, CHIP	2.2K	5%	1/10W
R385	1-216-057-00	RES, CHIP	2.2K	5%	1/10W
R390	1-216-025-91	RES, CHIP	100	5%	1/10W
R391	1-216-049-91	RES, CHIP	1K	5%	1/10W
R392	1-216-025-91	RES, CHIP	100	5%	1/10W
R393	1-216-049-91	RES, CHIP	1K	5%	1/10W
R394	1-216-025-91	RES, CHIP	100	5%	1/10W
R400	1-247-863-91	CARBON	22K	5%	1/4W
R432	1-247-854-11	CARBON	9.1K	5%	1/4W
R501	1-249-421-11	CARBON	2.2K	5%	1/4W
R502 ⚠	1-215-923-00	METAL OXIDE	10K	5%	3W F
R508 ⚠	1-215-864-00	METAL OXIDE	150	5%	1W F
R532	1-215-437-00	METAL	4.7K	1%	1/4W
R533	1-215-461-00	METAL	47K	1%	1/4W
R534	1-215-453-00	METAL	22K	1%	1/4W
R535	1-249-441-11	CARBON	100K	5%	1/4W
R541	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R542	1-249-429-11	CARBON	10K	5%	1/4W

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Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

REF.NO.	PART NO.	DESCRIPTION			REMARK	
R543	1-249-429-11	CARBON	10K	5%	1/4W	
R544	1-216-377-11	METAL OXIDE	4.7	5%	2W	F
R546	1-215-890-11	METAL OXIDE	470	5%	2W	F
R547	1-249-385-11	CARBON	2.2	5%	1/4W	F
R548	1-249-425-11	CARBON	4.7K	5%	1/4W	
R549	1-216-073-00	RES, CHIP	10K	5%	1/10W	
R552	1-247-887-00	CARBON	220K	5%	1/4W	
R553	1-260-312-11	CARBON	47	5%	1/2W	
R561	1-216-349-00	METAL OXIDE	1	5%	1W	F
R562	1-216-349-00	METAL OXIDE	1	5%	1W	F
R571 ⚠	1-216-369-00	METAL OXIDE	1	5%	2W	F
R572 ⚠	1-249-429-11	CARBON	10K	5%	1/4W	
R573 ⚠	1-247-895-91	CARBON	470K	5%	1/4W	
R574 ⚠	1-249-417-11	CARBON	1K	5%	1/4W	F
R575 ⚠	1-247-891-00	CARBON	330K	5%	1/4W	
R576 ⚠	1-249-441-11	CARBON	100K	5%	1/4W	
R578	1-216-467-11	METAL OXIDE	56K	5%	2W	F
R579	1-208-777-11	RES, CHIP	620	0.50%	1/10W	
R580	1-216-295-91	SHORT				
⧓R582	1-208-826-11	RES, CHIP	68K	0.50%	1/10W	
R583	1-208-830-11	RES, CHIP	100K	0.50%	1/10W	
R584	1-208-806-11	RES, CHIP	10K	0.50%	1/10W	
R585	1-216-085-00	RES, CHIP	33K	5%	1/10W	
R586 ⚠	1-216-065-91	RES, CHIP	4.7K	5%	1/10W	
R591	1-215-880-00	METAL OXIDE	10	5%	2W	F
R601	1-249-417-11	CARBON	1K	5%	1/4W	
R602	1-249-389-11	CARBON	4.7	5%	1/4W	F
R603	1-247-895-91	CARBON	470K	5%	1/4W	
R608	1-240-205-91	CARBON	22M	5%	1/2W	
R609	1-249-421-11	CARBON	2.2K	5%	1/4W	
R610	1-249-429-11	CARBON	10K	5%	1/4W	
R611	1-249-437-11	CARBON	47K	5%	1/4W	
R612	1-249-415-11	CARBON	680	5%	1/4W	
R613 ⚠	1-219-512-11	CARBON	2.2M	5%	1/2W	
R614	1-249-417-11	CARBON	1K	5%	1/4W	
R616	1-260-302-51	CARBON	6.8	5%	1/2W	
R617	1-249-415-11	CARBON	680	5%	1/4W	
R620	1-216-488-11	METAL OXIDE	18K	5%	3W	F
R623	1-249-429-11	CARBON	10K	5%	1/4W	
R625 ⚠	1-215-429-00	METAL	2.2K	1%	1/4W	
R626 ⚠	1-215-469-00	METAL	100K	1%	1/4W	
R630	1-249-421-11	CARBON	2.2K	5%	1/4W	
R631	1-249-429-11	CARBON	10K	5%	1/4W	
R632	1-215-445-00	METAL	10K	1%	1/4W	
R633	1-215-457-00	METAL	33K	1%	1/4W	
R634 ⚠	1-216-089-91	RES, CHIP	47K	5%	1/10W	
R635 ⚠	1-216-073-00	RES, CHIP	10K	5%	1/10W	
R636	1-208-798-11	RES, CHIP	4.7K	0.50%	1/10W	
R637	1-208-806-11	RES, CHIP	10K	0.50%	1/10W	
R638	1-215-457-00	METAL	33K	1%	1/4W	
R639	1-216-089-91	RES, CHIP	47K	5%	1/10W	
R640	1-249-415-11	CARBON	680	5%	1/4W	
R641	1-216-397-11	METAL OXIDE	4.7	5%	3W	F
R642	1-216-065-91	RES, CHIP	4.7K	5%	1/10W	
R644	1-249-418-11	CARBON	1.2K	5%	1/4W	
R646 ⚠	1-202-961-11	CEMENTED	1.8	5%	10W	
R647	1-260-081-11	CARBON	33	5%	1/2W	
R648	1-249-421-11	CARBON	2.2K	5%	1/4W	
R649	1-249-413-11	CARBON	470	5%	1/4W	
R650	1-249-415-11	CARBON	680	5%	1/4W	
R651 ⚠	1-247-289-00	CARBON	8.2M	5%	1W	
R652 ⚠	1-202-961-11	CEMENTED	1.8	5%	10W	
R655	1-216-361-00	METAL OXIDE	0.22	5%	2W	F
R656	1-249-419-11	CARBON	1.5K	5%	1/4W	
R657	1-247-843-11	CARBON	3.3K	5%	1/4W	
R658	1-215-929-11	METAL OXIDE	100K	5%	3W	F
R660 ⚠	1-202-933-61	FUSIBLE	0.1	10%	1/2W	F
R661	1-216-488-11	METAL OXIDE	18K	5%	3W	F
R663	1-216-369-00	METAL OXIDE	1	5%	2W	F
R670	1-249-421-11	CARBON	2.2K	5%	1/4W	
R671	1-249-417-11	CARBON	1K	5%	1/4W	
R675	1-215-859-00	METAL OXIDE	22	5%	1W	F
R682	1-216-065-91	RES, CHIP	4.7K	5%	1/10W	
R683	1-249-425-11	CARBON	4.7K	5%	1/4W	

RELAY

RY601 ⚠	1-755-018-11	RELAY
RY602	1-755-266-11	RELAY, AC POWER

SWITCH

S001	1-692-431-21	SWITCH, TACTILE
S002	1-692-431-21	SWITCH, TACTILE
S003	1-692-431-21	SWITCH, TACTILE
S004	1-692-431-21	SWITCH, TACTILE
S005	1-692-431-21	SWITCH, TACTILE
S006	1-692-431-21	SWITCH, TACTILE
S007	1-692-431-21	SWITCH, TACTILE

TRANSFORMER

T501 ⚠	1-437-210-11	TRANSFORMER, HORIZONTAL DRIVE
T504 ⚠	1-453-283-11	TRANSFORMER ASSY, FLYBACK (NX-1744//X4E4)
T601 ⚠	1-423-895-11	TRANSFORMER, LINE FILTER (LFT)
T603 ⚠	1-433-428-11	TRANSFORMER, CONVERTER (SRT)
T604 ⚠	1-431-852-11	TRANSFORMER, CONVERTER (SRT)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION	REMARK

THERMISTOR

THP601	1-808-059-31	THERMISTOR, POSITIVE	

TUNER

TU101 ⚠	8-598-431-10	TUNER, FSS BTF-WA411	

VARISTOR

VDR601⚠	1-809-267-41	VARISTOR ERZV10D471	
VDR602	1-809-267-41	VARISTOR ERZV10D471	

CRYSTAL

X300	1-579-972-11	VIBRATOR, CRYSTAL	
X301	1-567-505-11	OSCILLATOR, CRYSTAL	
X302	1-579-973-11	VIBRATOR, CRYSTAL	

C

*** A-1331-867-A C BOARD, MOUNTED**

	1-900-800-81	WIRE ASSY, G2 LEAD
	4-382-854-11	SCREW (M3X10), P, SW (+)

CAPACITOR

C1751	1-107-652-11	ELECT	10MF	20%	250V
C1752	1-115-350-51	CERAMIC	0.0047MF		2KV
C1755	1-107-667-11	ELECT	2.2MF	20%	160V

CONNECTOR

CN1751 *	1-564-509-11	PLUG, CONNECTOR	6P
CN1752	1-564-510-11	PLUG, CONNECTOR	7P
CN1753	1-695-915-11	TAB (CONTACT)	
CN1754	1-695-915-11	TAB (CONTACT)	
CN1755	1-695-915-11	TAB (CONTACT)	

DIODE

D1751	8-719-110-08	DIODE RD8.2ESB2
D1754	8-719-901-83	DIODE 1SS83TD
D1755	8-719-901-83	DIODE 1SS83TD
D1756	8-719-901-83	DIODE 1SS83TD
D1758	8-719-302-43	DIODE EL1Z

REF.NO.	PART NO.	DESCRIPTION	REMARK

IC

IC1751	8-759-491-92	IC TDA6107Q-N1

JACK

J1751 ⚠	1-251-688-11	SOCKET, CRT

COIL

L1751	1-410-478-11	INDUCTOR	47UH

TRANSISTOR

Q1751	8-729-119-78	TRANSISTOR 2SC2785-HFE

RESISTOR

R1751	1-247-887-00	CARBON	220K	5%	1/4W	
R1752	1-247-863-91	CARBON	22K	5%	1/4W	
R1753	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1754	1-249-441-11	CARBON	100K	5%	1/4W	
R1755	1-249-415-11	CARBON	680	5%	1/4W	
R1756	1-260-099-11	CARBON	1K	5%	1/2W	
R1757	1-260-099-11	CARBON	1K	5%	1/2W	
R1758	1-260-099-11	CARBON	1K	5%	1/2W	
R1759	1-260-087-11	CARBON	100	5%	1/2W	
R1760	1-260-123-11	CARBON	100K	5%	1/2W	
R1761	1-216-372-11	METAL OXIDE	1.8	5%	2W	F
R1763	1-247-807-31	CARBON	100	5%	1/4W	
R1764	1-247-807-31	CARBON	100	5%	1/4W	
R1765	1-247-807-31	CARBON	100	5%	1/4W	
R1770	1-260-132-11	CARBON	560K	5%	1/2W	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
	ACCESSORIES AND PACKING MATERIALS		
	1-501-730-41	ANTENNA, TELESCOPIC	
	1-417-182-11	CONVERTER (EAC-25)	
⚠	1-769-796-71	CORD, POWER (WITH CONNECTOR)	
	3-861-824-41	MANUAL, INSTRUCTION	
	3-864-793-41	INSERT, BA4 BOLIVIAN MODEL	
	4-041-254-01	BAG, PROTECTION	
	4-041-254-11	BAG, PROTECTION	
*	4-061-391-01	CUSHION, LOWER ASSY	
*	4-061-392-01	CUSHION, UPPER ASSY	
*	4-061-395-01	CARTON, INDIVIDUAL	
		REMOTE COMMANDER	
	1-475-635-11	REMOTE COMMANDER (RM-Y155)	
	1-475-758-11	REMOTE COMMANDER (RM-Y155)	
	9-939-830-01	BATTERY COVER, REMOTE	

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